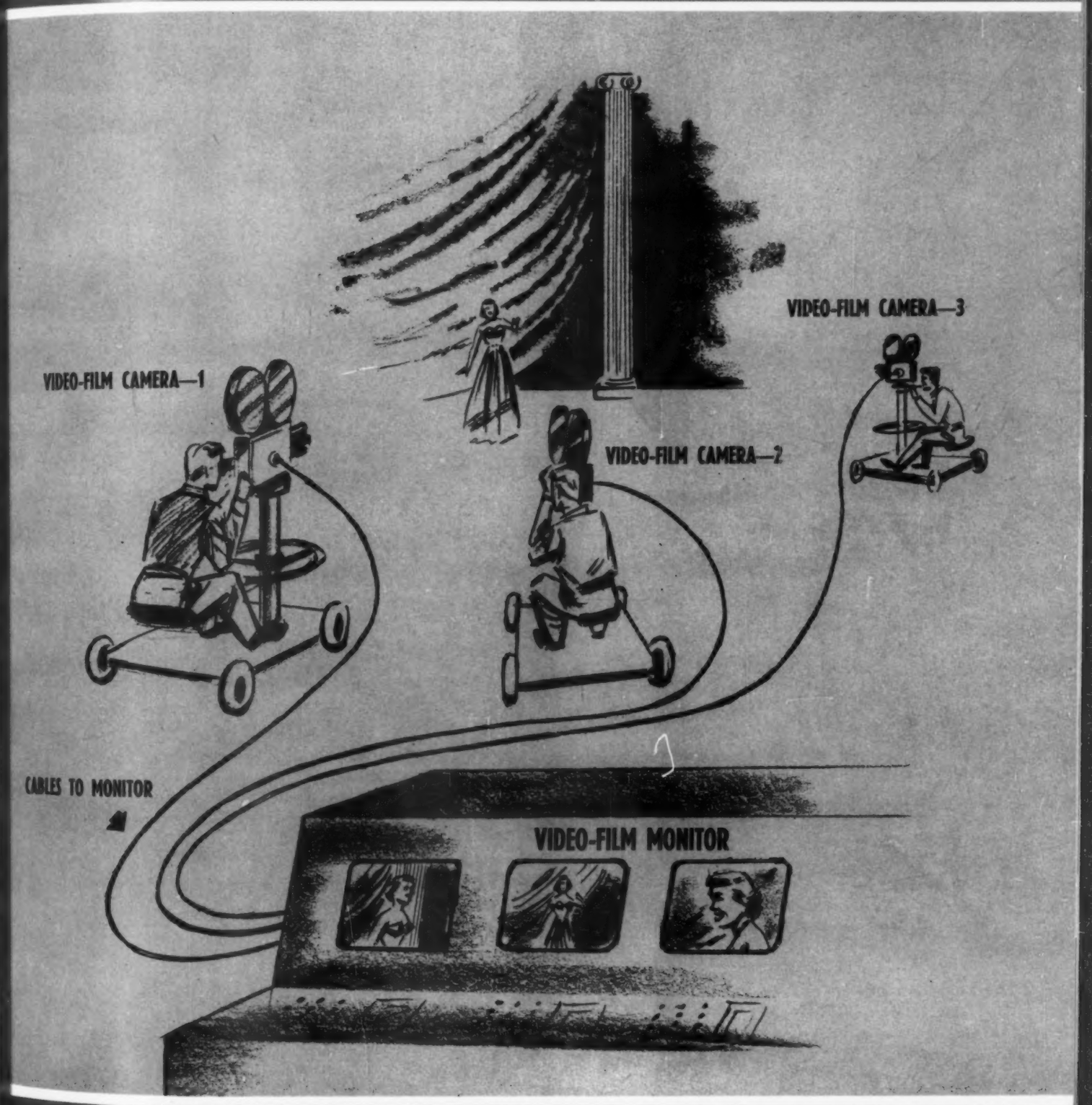
AMERICAN

MARCH • 1955

Cinematographer

THE MAGAZINE OF MOTION PICTURE PHOTOGRAPHY



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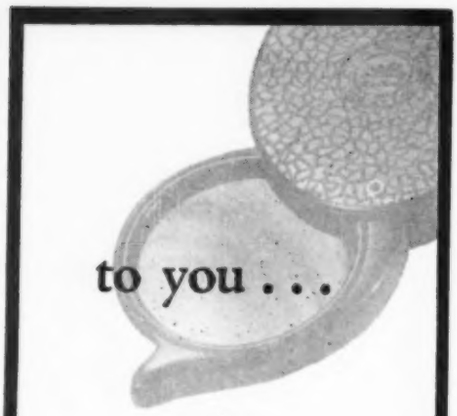

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AMERICAN

Cinematographer

THE MAGAZINE OF MOTION PICTURE PHOTOGRAPHY
PUBLICATION OF THE AMERICAN SOCIETY OF CINEMATOGRAPERS

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ON THE COVER

ARTIST'S CONCEPTION of the simultaneous telecasting and flim recording of a live television show, using the new video-film cameras described by Al Simon, beginning on page 140, this issue. While cameras pictured do not represent the true design of the Simon video-film camera, their use for simultaneous pickup at three different locations on set, and the manner in which the tri-monitor panel shows what each camera is recording is correctly interpreted.

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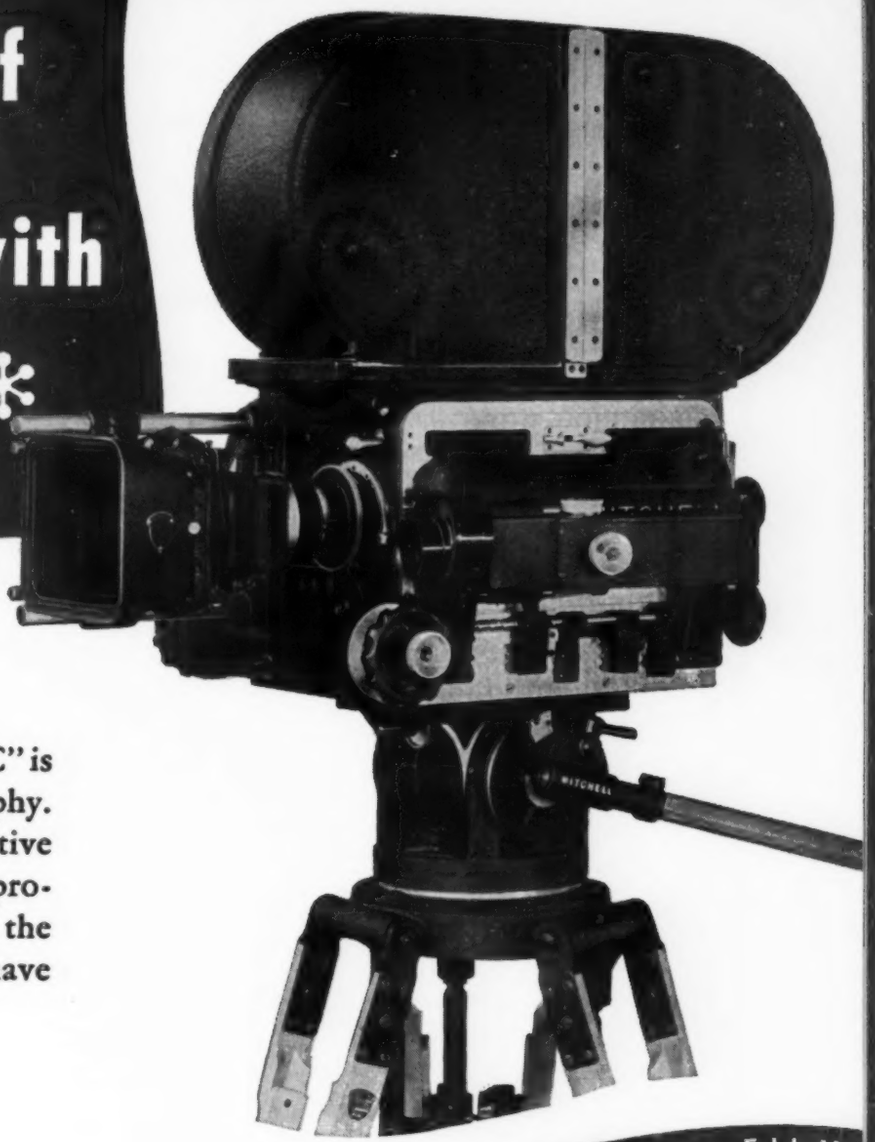
The great films of Today are shot with a *Mitchell**



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Hollywood
Bulletin Board

RUTTENBERG

KAUFFMAN

Golden Globes, annual awards of the Hollywood Foreign Correspondents Association, were bestowed last month on Joseph Ruttenberg, ASC, and Boris Kauffman, ASC, for outstanding achievement in motion picture photography for 1954.

Ruttenberg's award is for the color photography of the M-G-M production, "Brigadoon." Kauffman's award, accepted in his absence by Charles Lawton, ASC, is for the black-and-white photography of Columbia's Pictures' "On The Waterfront." Same picture is also a nominee for an Academy Award for photography.

★

Joseph Ruttenberg, ASC, accompanied by Mrs. Ruttenberg, sails for Europe on March 8th for a two-months' vacation on the continent. Ruttenberg has just signed a new term contract with M-G-M, where he has been a director of photography for 20 years.

★

American Society of Cinematographers, last month, voted to membership director of photography Gert Anderson and, to associate membership, Stacey O'Brien of General Film Laboratories Corp., Hollywood.

Gert Anderson photographs the various TV film shows produced by Screen Gems.

★

The ASC's February monthly meeting featured a screening of two of the three episodes of the "Davy Crockett" TV films produced by Walt Disney and photographed by Charles Boyle, ASC.

Object of screening was to show the screen quality of prints made for television from Eastman Color negative, and also to show the photographic technique Boyle used in shooting the films especially for the television medium.

Sam Leavitt, ASC, is latest Hollywood cinematographer to switch from major productions to television film production. Leavitt was signed last month to direct the photography of "Halls of Ivy," starring Ronald Colman and Benita Hume. TV film series is produced by Television Programs of America, Inc., at Motion Picture Center, Hollywood.

★

Screen Producers Guild Intercollegiate Gold medallion for the best film conceived and created in American colleges and universities was awarded last month to the University of California at Los Angeles, for its 16mm production, "A Time Out of War."

Citations also went to: "One Victory," by University of Minnesota; "Books Alive," University of Miami; and "Your State Trooper," University of Indiana.

The Intercollegiate film competition is an annual event sponsored by the Guild.

★

Hal Rosson, ASC, was signed to direct the photography of "Pete Kelly's Blues," which Jack Webb is producing for Warner Brothers. Initial filming began February 25th in New Orleans.

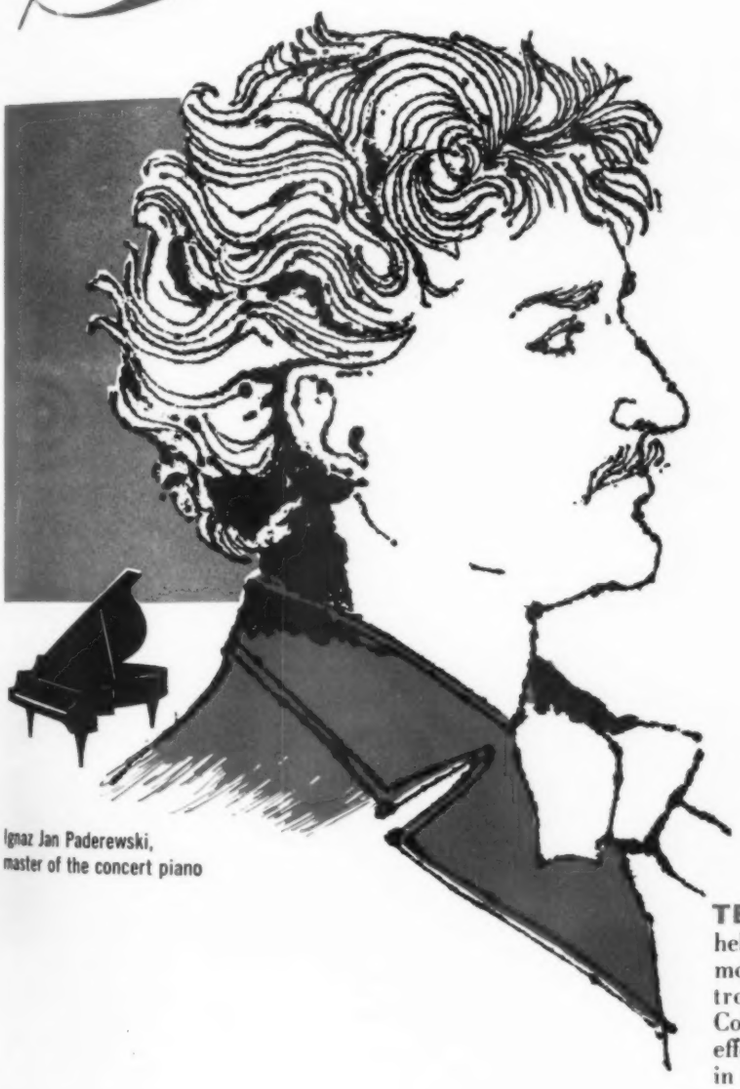
★

Karl Freund, ASC, head of Photo Research Corp., and who also directs the photography of "I Love Lucy," "Our Miss Brooks," and "December Bride" television films for Desilu Productions, celebrated his 50 years in the motion picture business last month simultaneously with the Screen Director's Guild annual banquet. Freund, a member of the Guild, hosted a party of fifty friends and associates at a table at the Guild banquet. Lucille Ball and Desi Arnaz presented him with a solid gold currency clip as a memento of the occasion.

FREUND

Freund started his career in motion pictures in Germany in 1905. He later came to Hollywood and Metro-Goldwyn-Mayer, where he was a director of photography for ten years. Here he photographed the memorable "The Good Earth," for the photography of which he won an Academy Award. END

THE FINEST *Sound* YOU'VE EVER HEARD



Ignaz Jan Paderewski,
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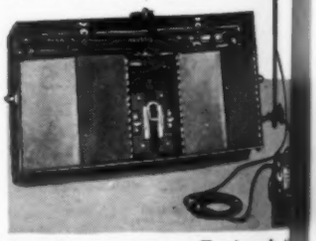

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For Studio or on Location. Lightweight — collapsible — for TV and motion picture production. Sturdy construction. Boom telescopes 7 to 17 ft. Rear handle for directional mike control. A remote control permits 360° rotation of the microphone. Operator can push the boom and operate microphone swivel simultaneously. Extension rods make it simple to operate microphone rotation from floor. Microphone cable hangs outside of boom, preventing cable from tangling with the rotation mechanism. Ball bearing casters, rigid foot locks, pneumatic drop check for lowering the boom, etc.

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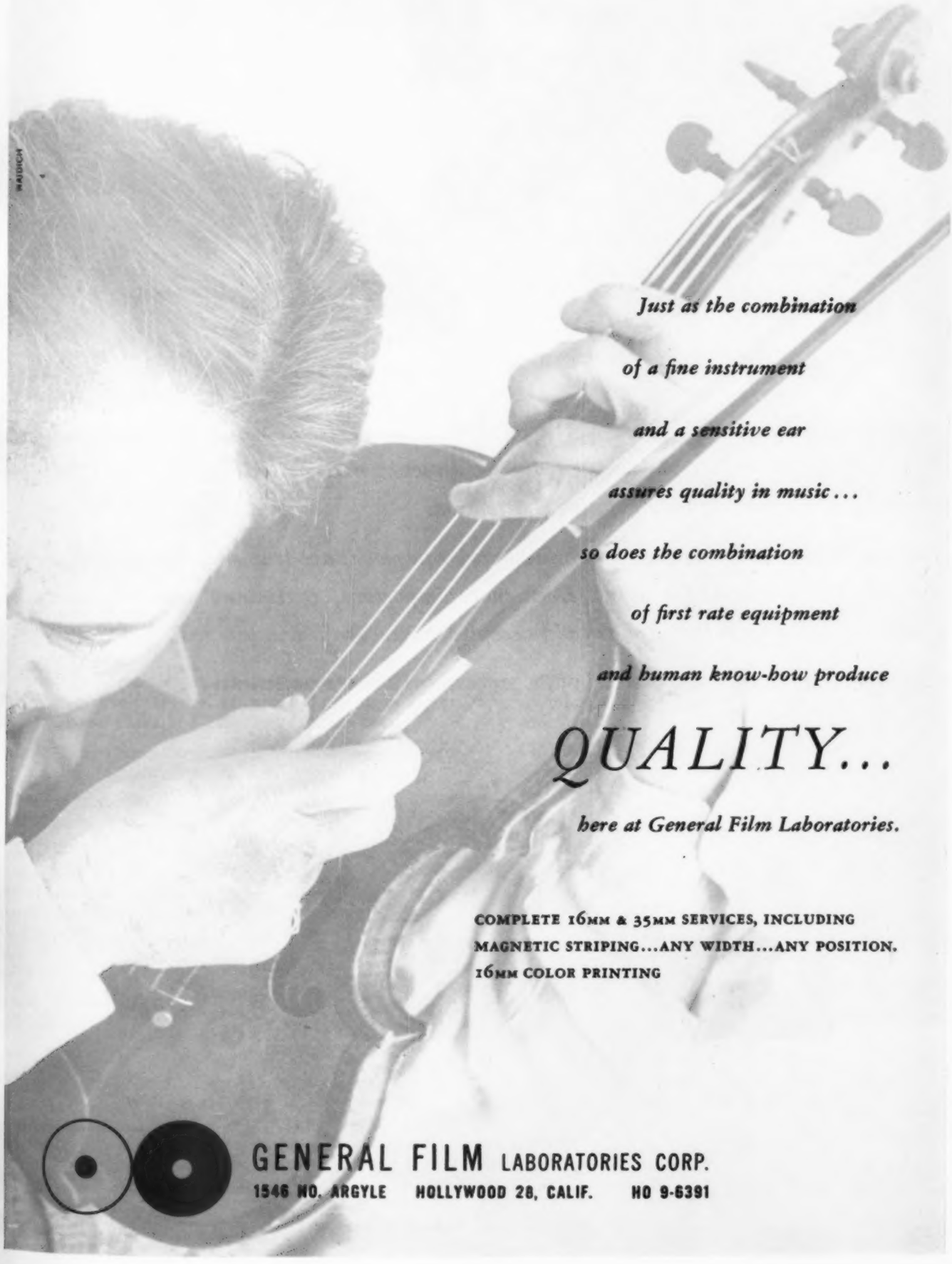

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and a sensitive ear

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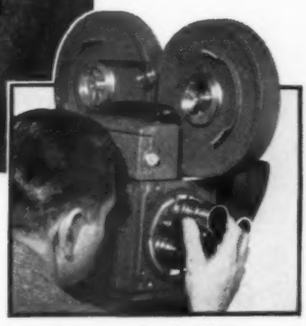

"Auricon Pro-600" with Critical Ground-Glass Focussing, available on 3-Lens Turret Model.

Announcing THE ALL NEW "AURICON PRO-600" for 16mm optical sound-on-film

- Self-blimped for completely quiet studio operation. The whisper-quiet film flow of The "Auricon Pro-600" is silent proof of precision design. Your sound-recording microphone never picks up "Pro-600" Camera noise!
- 600 ft. film Magazines with Auricon-Electromatic Take-up, for 16 minutes of continuous "Talking-Picture" filming.
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- $1,165.00 list... for Auricon Pro-600 "Double-System" professional picture-camera with built-in features. Also available at added cost is "Single-System" equipment for Optical Sound-Track-On-Film, "C-mount" Lenses, View-Finders, Film Magazines, 3-Lens Turret, Critical Ground-Glass Focusing, Lens Sun-Shades, Tele-Finders, etc...
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Auricon Hollywood

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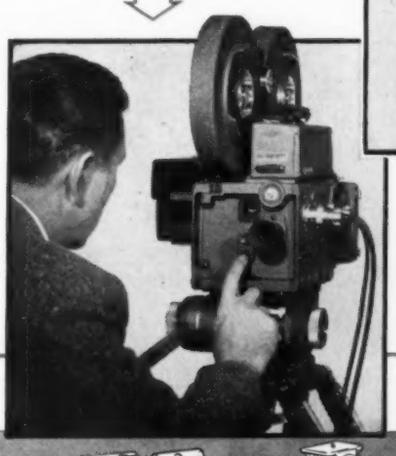

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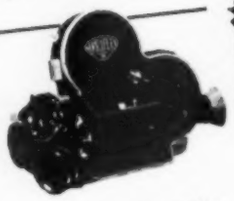

The only 16mm camera providing through-the-lens focusing and viewing during exposure, electric motor drive. With matte box, cables. $1475.00

16mm Xenon f/1.9 lens..... $ 170.00
25mm Xenon f/1.5 lens..... 170.00
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100 ft. mag. camera
New $695.00
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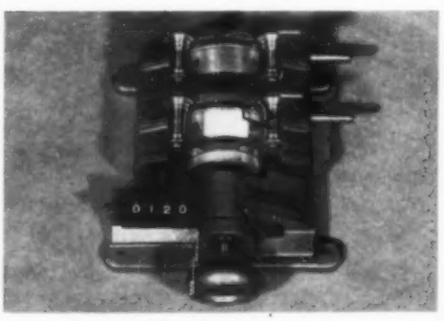
Magnasync Mfg. Co., Ltd., North Hollywood, Calif., announces its new X-400 synchronous 16mm magnetic film recorder and reproducing channel. Designed especially to meet needs of the independent producer working on tight budgets, it provides a simple interlock with camera or projector. List price is $895.00.

Synchro-View-Lite

The Camera Mart, Inc., 1845 Bdwy., N. Y. City, offers a practical modification for 35mm Moviola synchronizers



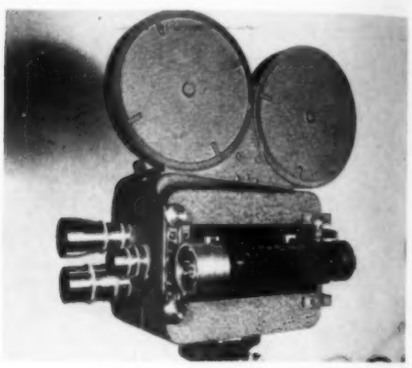
consisting of a solid insert with built-in lighting unit to facilitate marking 17½-mm and 35mm film. Descriptive literature is available.

16mm Color Reduction Prints

Houston Color Film Laboratories, 230 W. Olive, Burbank, Calif., now offer printing on 16mm color positive duplicating film by direct reduction from 35mm Ansco or Eastman Color original or dupe negatives. Further data and prices are available on request.

Single-Lens Camera

Fred Parrish, 10851 Fairbanks Way, Culver City, offers a low-priced silent 16mm camera designed especially for use in producing sound films with the new, economy-priced 16mm magnetic film recorders. Camera, which is a con-



version of the Cine-Voice camera, takes standard Mitchell 400-ft. magazines, affording long runs in the production of films for television. Basic price is $795, which does not include lens, magazine or finder. Literature is available.

New F/0.95 Lens for 16mm Cameras

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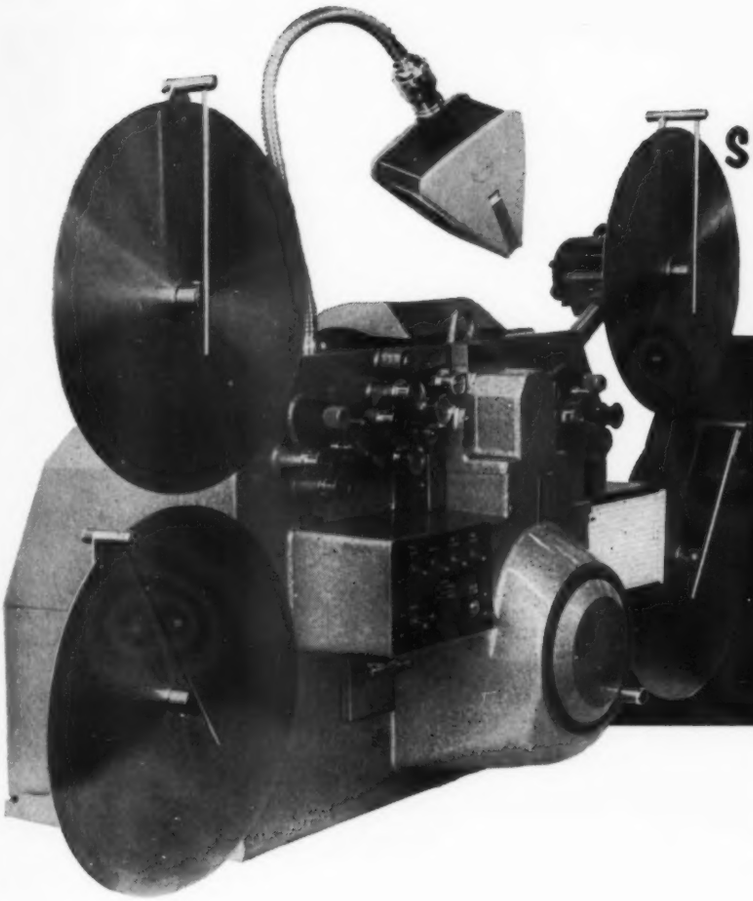

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For 16mm Black & White or Color Film

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These entirely new, completely self-contained, compact units are the result of many years engineering and development, designed to produce consistently high quality prints with a minimum of manual operation.

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- *Three-way slide-type aperture easily adjusted to print picture, sound or composite. Separate edge-printing light.*
- *Torque motor-driven take-ups require no belts, clutches or adjustments.*
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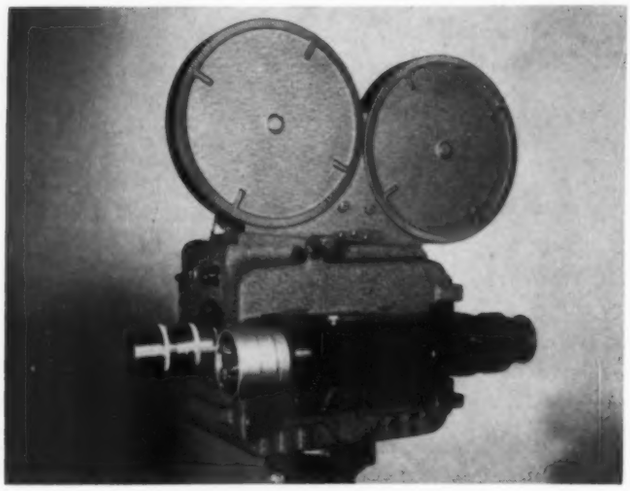

Single-lens 400-foot camera.

400-foot camera with Pan Cinor lens.

A Single-lens 16mm Camera For Use With 16mm Magnetic Recorders...

Here is the ideal companion camera for economy production of sound motion pictures, using the new, popular 16mm synchronous magnetic film recorders.

The camera, a conversion of the popular Cine-Voice 16mm sound camera, takes 400-foot magazines, has positive synchronous motor drive and is ideally suited for use with any 60-cycle synchronous magnetic tape or optical sound recorder.

The single-lens, silent, 400-ft. camera (pictured above at left) cannot be converted to take larger film magazines.

Write for data and prices on complete camera equipped with Pan Cinor zoom lens, 3-lens turret and zoom finder.

$795

Price does not include lens, magazine, or finder.

We can convert your present Cine-Voice camera to take standard Mitchell 400-foot or 1200-foot film magazines, thus greatly expanding its range of usefulness. Also available is a sturdy carrying case especially designed and constructed to accommodate your converted camera plus two magazines and necessary accessories.

Write for literature and prices.

Cine-Voice Conversion, using 400 or 1200-foot magazines.

Special carrying case for conversion at left.

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SYNCHRONOUS
Magnetic FILM RECORDER

Magnaphonic
SOUND SYSTEM

NEW!

MAGNASYNC X-400 RECORDERS

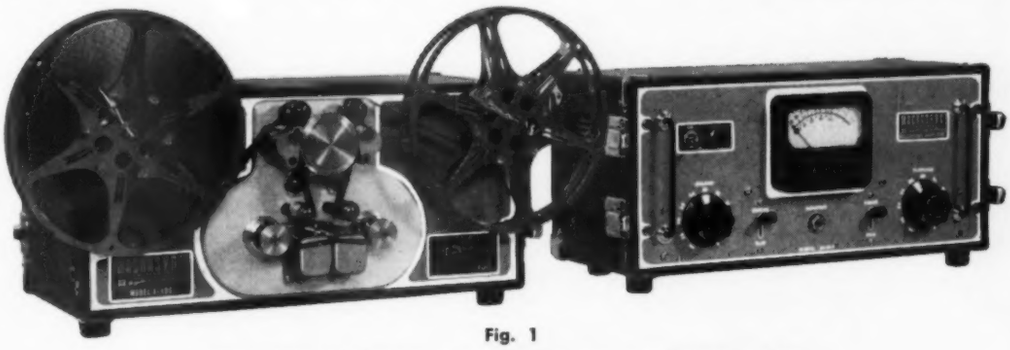

Fig. 1

CASES CAN BE SEPARATED AS SHOWN FOR "CONSOLE" MODEL

Fig. 2

The X-400 is a complete synchronous 16mm Magnetic film recording and reproducing channel, professional in every detail. This is the answer for the independent producer whose budget has prevented him from taking advantage of **sprocketed** double system production. The X-400 is designed around the basic "Synkinetic" motion principle that through the years has given meaning to the Magnasync pledge—Quality-Economy-Integrity!

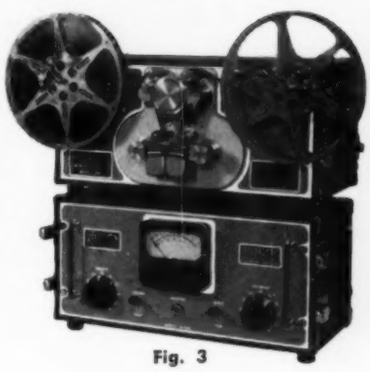

Fig. 3

SIMPLE INTERLOCK WITH CAMERA OR PROJECTOR

The X-400 may be operated in either of the positions illustrated in Figures 1 and 3. Positive projector or camera interlock can be made with the simple flexible-cable gearbox attachment shown above. Extended armature shaft of the synchronous drive motor is accessible through opening in case. This shaft also serves as a convenient "framing knob."

Fig. 4
COMPACT-PORTABLE CASE IS ASSEMBLED AS SHOWN

"2-IN-1" UNITIZED CONSTRUCTION SHOWING MECHANICAL UNIT STACKED ON AMPLIFIER

The X-400 Recorder was designed originally for the export market where extreme portability, professional quality and "dollar exchange" economy is mandatory. The amazing performance of this machine has prompted us to make it available to American producers as well. Considering the unbelievable price of this equipment, we are emphasizing the fact that the specifications are **unconditionally guaranteed!**

SPECIFICATIONS:
FREQUENCY RESPONSE: 50-8000 cps. ± 2 db. **FLUTTER AND WOW:** 0.2% maximum overall. **DISTORTION:** Less than 2% total harmonic. **SIGNAL-TO-NOISE RATIO:** Greater than 50 db. **DIALOGUE EQUALIZATION:** Switch for bass roll off from 300 cps to —10 db. at 100 cps. **INPUTS:** 1. High gain (100 db) microphone channel. (Strapped for 50 ohms standard. Can easily be changed to 250 ohms or 600 ohms). Cannon X-L connector. 2. Hi Impedence input.

Producer Net Price $895.00

F.O.B. NO. HOLLYWOOD, CALIF. EFFECTIVE JAN. 1, 1955. SUBJECT TO CHANGE WITHOUT NOTICE.

DEALERS

NEW YORK—Camera Equipment Co., 1600 Broadway, New York 19. JUdson 6-1420. Cable Address CINEQUIP.

CHICAGO—Zenith Cinema Service, Inc., 3252 Foster Ave., Chicago 25, Ill. IRving 8-2104.

SAN FRANCISCO—Brooks Camera Co., 45 Kearney St., San Francisco, Calif. EXbrook 2-7348.

CANADA—Alex L. Clark, Ltd., 3745 Bloor St., Toronto 18, Ontario. BElmont 1-3303.

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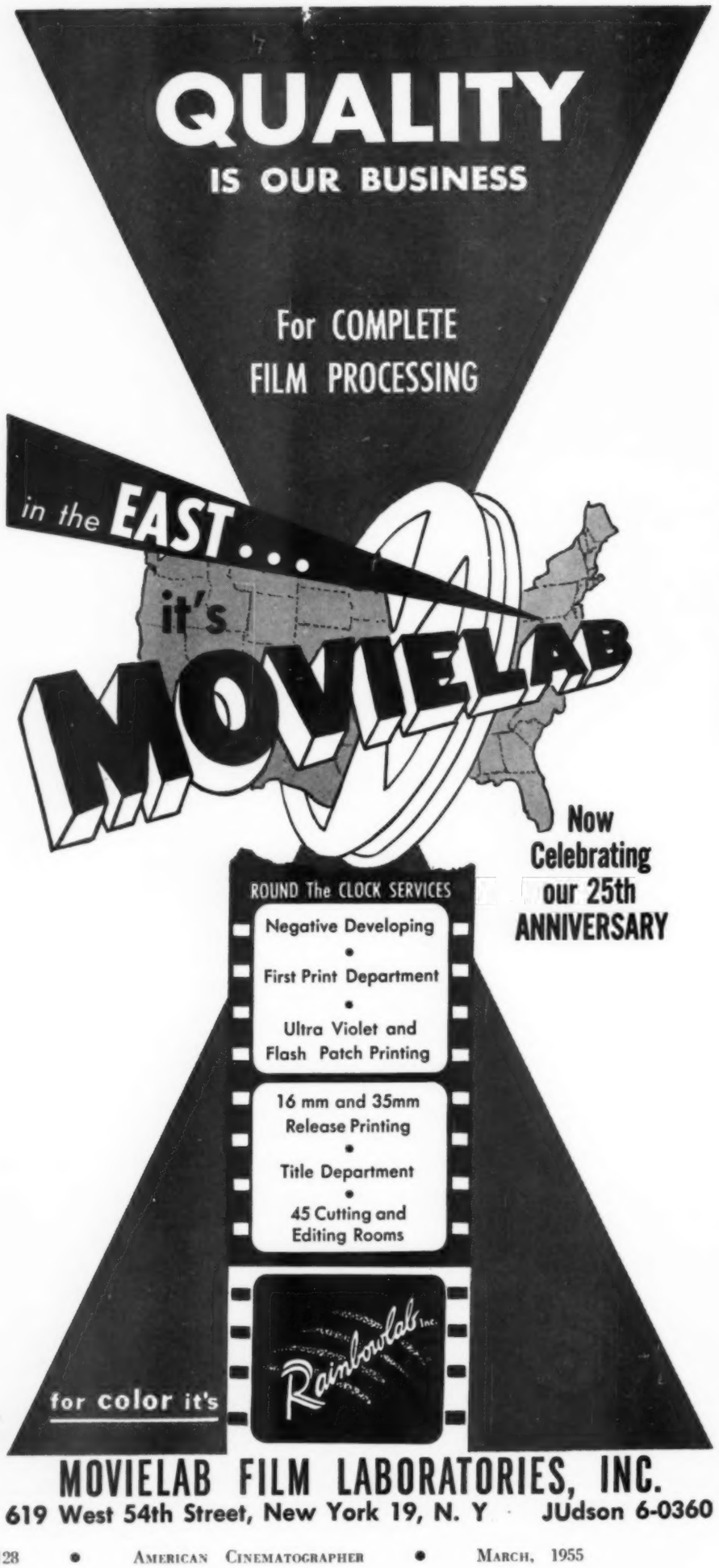

MOVIELAB FILM LABORATORIES, INC.
619 West 54th Street, New York 19, N. Y · JUdson 6-0360

CATALOGS & BROCHURES
available to readers

Equipment News

"Camera Talk" is breezy, informative little publication now being published by Camera Equipment Co., 1600 Broadway, New York 19, N. Y. Edited especially for all who are interested in professional or amateur cinematography, publication will be sent free to anyone in industry making request.

★

Projection Lamp Guide

The Photolamp Div. of Sylvania Electric Products, Inc., 2936 E. 46th St., Los Angeles 58, Calif., announces availability of company's latest Projection Lamp Buying Guide. It contains extensive technical data regarding every type incandescent projection lamp, plus prices, etc.

★

Table Top Movies

Owners of 8mm and 16mm cameras will find interest in a new booklet, "Home Movies the New Table-top Way," offered by the Kalart Co., Plainville, Conn. Booklet introduces new way to enjoy home movies by showing them on the Craig Projector-Editor.

★

Kodascope Projectors

A pamphlet is now available from Eastman Kodak Co., Rochester, N. Y. describing in detail all of the new Kodascope Pageant series of 16mm sound projectors, and their many possible uses under varying conditions of audio-visual operation.

★

Camera Lighting Unit

A comprehensive illustrated 8-page brochure describing the many Mayfair portable lighting units marketed for use with cine cameras is now available free from Mayfair Mfg. Co., 89-93 Grand St., Brooklyn 11, N. Y. Featured is description of company's new, exclusive pushbutton control for their Foldomatic lighting units.

THE LITERATURE described above contains a wealth of valuable data for the cinematographer and others in the film industry. Unless otherwise indicated, copies are free. Requests should be addressed directly to the company named—not to American Cinematographer.

—EDITOR.

F&B

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Motion Picture & TV Film Production
EQUIPMENT!

Repairs
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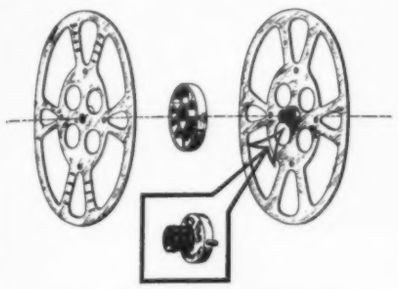
HERE'S 80 REASONS WHY— F & B SPLIT REELS



ARE BETTER FOR YOUR FILM!

1. **NO REWINDING** needed when projecting — measuring — editing — synchronizing — inspecting — cleaning.
2. **STORE FILM ON CORES** — but perform all above functions instantaneously simply by operating between split reels.
3. **REMEMBER**—with titewinds, you can **only** rewind film off reels onto cores—or vice versa and **that's all.** You still must rewind and rewind.

4-79 For the **time, trouble, labor, space, scratches, abrasions, dirt, aggravation** and **money** you will save by using **F&B SPLIT REELS.**

80. Don't junk **F&B SPLIT REELS.** We'll gladly refund your money if you're not 100% satisfied.

400 ft. split reel—16mm....$4.50
800 ft. split reel—16mm.... 6.00
1200 ft. split reel—16mm.... 7.50
1600 ft. split reel—16mm.... 9.00

(Professional & Educational Discounts)

SORRY—No titewinds will be accepted in trade!

FACTS ABOUT F&B

- **F&B Cannot be Undersold** . . . F&B prices are always the lowest in the industry. Maximum discounts cheerfully granted whenever possible.
- **F&B carries a Complete Stock** . . . Everything in new and used equipment for production, projection, processing, recording, editing, distribution, etc. F&B is agent for all major manufacturers.
- **F&B offers an Ironclad Guarantee** . . . Nothing sold "as is" Every item sold carries a 100% money back guarantee.
- **F&B wants your Account** . . . Your credit is good at F&B. You will receive top service, courtesy and reliability when you deal with F&B.

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NEW F&B Pro-Cine TRIPOD

—FOR ALL CAMERAS

A BRAND-NEW, MODERN TRIPOD . . . precision engineered and designed, ruggedly constructed for long and satisfactory service.

QUOTES FROM PRO-CINE USERS—
" . . . Finest precision workmanship"
" . . . Best in its class" " . . . Great"
" . . . Beautiful smooth movement"
" . . . Perfect with Auricon camera."

— SPECIAL FEATURES —

★ **SUPER-SMOOTH,** fluid friction pan and tilt head.

★ **TELESCOPING,** two position, offset panhandle, for adjustability to your length requirements, left or right hand use; offset for greatest comfort and convenience.

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★ **SPRING-BALANCED HEAD,** adjusted to your camera, available at extra cost.

HEIGHT: 41" to 75" . . . 360° pan; 90° tilt.
FINEST WORKMANSHIP AND MATERIALS
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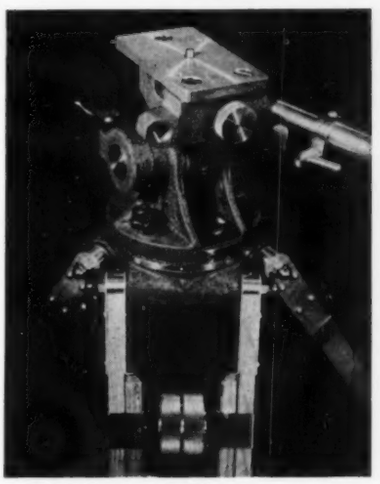

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100 Eyemo motors—12 volt—8 to 48 fps—Surplus—as is—guaranteed to be in good working order or your money refunded. Only—**$49.50** each.

16mm Leader—fresh gray stock—1000 ft. **$14.50.**

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Arriflex 35mm 200 ft. magazines, **$47.50.**

Three wheel dolly — seat — case — Reg. $300—**$167.50.**

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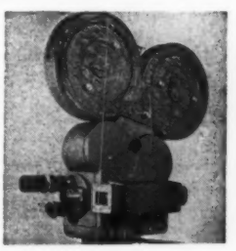

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The only low cost magnetic process with High Quality Reproduction— (10 to 12 decibel higher gain).

Has uniform quality—The magnetic track is uniform and precise in thickness, placement and width—micrometer controlled!

It's different! — A non-liquid process, coated by Minnesota Mining, laminated by Capital to your film absolutely flat and smooth.

No crowning, no spreading, no crinkling or cracking.

Gives you a choice —
16mm or 8mm striping
30, 50, or 100 mil track width
placement on the base or **emulsion** side of the film.

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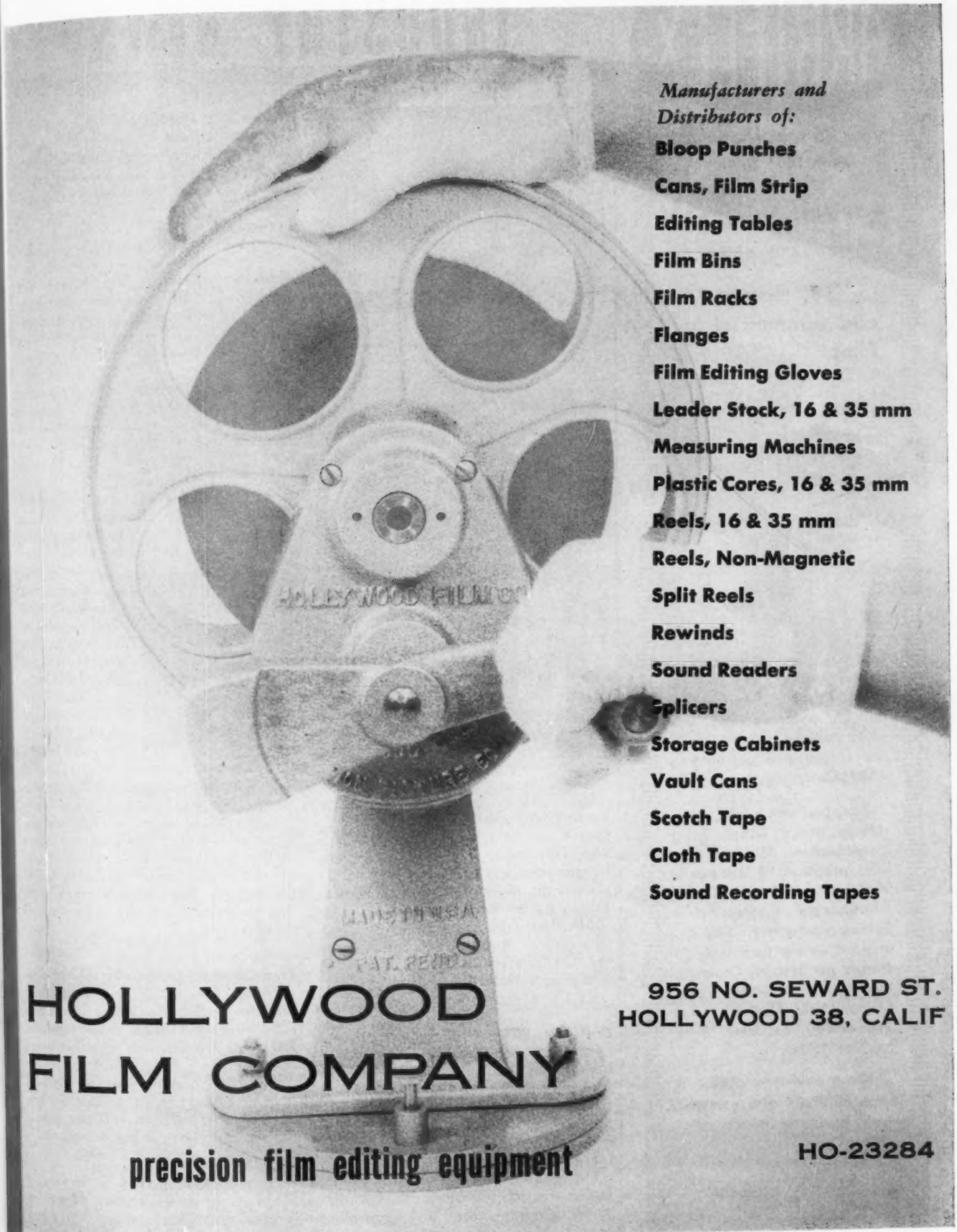

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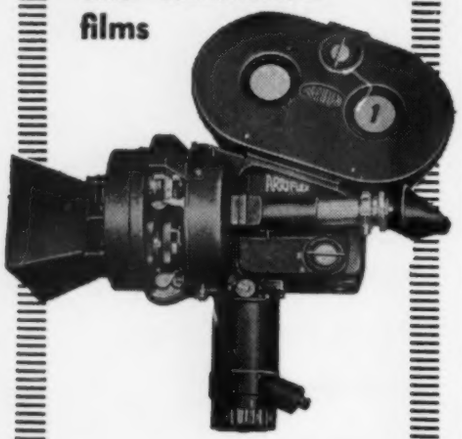
New 35 mm Model 2A
With 180° Shutter

A TRULY GREAT CAMERA
for TV, Newsreel and commercial films



For tough and trying assignments, ARRIFLEX 35 is in a class by itself. Reflex focusing through photographing lens while camera is operating—this is just one outstanding ARRIFLEX feature.

Equipped with bright, right-side-up image finder, 6½ x magnification. Solves all parallax problems. 3 lens turret. Variable speed motor built into handle operates from lightweight battery. Tachometer registering from 0 to 50 frames per second. Compact, lightweight for either tripod or hand-held filming. Takes 200' or 400' magazine. Write for free folder.

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620 BROADWAY NEW YORK CITY

INDUSTRY NEWS

Dr. Herbert T. Kalmus, right, receives Foreign Press award from Merian C. Cooper.

Dr. Herbert T. Kalmus, president and general manager of Technicolor Motion Picture Corp., received the Pioneer Award in Cinematography of the Foreign Press Association at a ceremony held last month in Los Angeles.

In making the award to Dr. Kalmus, the Foreign Press Association broke a 12-year old tradition of honoring only actual film makers with the Pioneer Award. This is the first time a figure connected with technical advances in the motion picture industry has been so honored.

Merian C. Cooper, who presented the award to Dr. Kalmus, pointed out that Technicolor, in bringing color to the screen, changed and widened the possibilities of movie making in the same manner that sound and wide screen procedures changed them.

★

Byron Roundabush, president of Byron, Inc., Washington, D. C., has been elected a special member of the Edison Pioneers. Organization was originally founded by persons directly associated with Thomas Edison and his work.

Mr. Roundabush was recently reelected secretary of the Association of Cinema Laboratories, and also convention vice president of the SMPTE.

★

DuPont's Photo Products Department opened its new air-conditioned office building and photographic warehouse in Dallas, Texas last month.

Located at 1628 Oak Lawn Avenue, the 70 by 106 foot building contains more than 7,000 square feet of floor space.

Offices are occupied by Paul H. Smith, Dallas district manager; W. F. Lockwood, sales supervisor; and C. S. Mowbray, technical representative.

A new film storage building capable of accommodating sixty million feet of motion picture film under electrically-controlled temperature and humidity conditions, has been completed by Consolidated Film Industries at Fort Lee, New Jersey.

Said to be the only storage center in the country designed especially for long-term scientific film storage and protection, CFI's mammoth structure maintains constant 72 degrees temperature and 50 per-cent relative humidity to prevent shrinkage, curl, decomposition or fading.

Among the modern safety procedures is a method of inspecting all film under ultra-violet light, to guarantee that no nitrate film enters the premises.

★

E. B. "Mike" McGreal has been named President of the Houston Color Film Laboratories, Inc., of Burbank, processors of color motion picture film.

McGreal has been associated with the motion picture industry for 26 years, joining M-G-M in 1929. In 1934 he went with Warner Brothers and in the following 19 years headed the camera department, still lab, special effects, miniatures and painting departments. He was subsequently made executive director of all photographic departments at Warners. McGreal thus brings to Houston Color Labs a valuable background of experience and knowledge of the industry. Details for the expansion of the laboratory are to be announced shortly.

★

Two patented inventions held by Gasparcolor, Inc., have been licensed to Eastman Kodak Company. The inventions have to do with the arrangement and color sensitivity of emulsion layers in a multilayer color photographic film.

The rights granted Eastman are said to be non-exclusive, and Gasparcolor will license other film manufacturers who wish to use either of the two patents.

★

Twentieth Century-Fox is revamping sound stages on its Western Avenue lot in preparation for company's entry into production of films for television.

WORTH
WAITING FOR

ARRIFLEX 16®

The World's Outstanding 16mm Camera

Because it has so much more to offer, the Arriflex 16 has become the most wanted 16mm camera in the field. The demand has been greater than the supply from the very beginning . . . and for the best reasons in the world:

- The Arriflex 16 is the only 16mm camera with a mirror-reflex shutter for continuous thru-the-lens focusing and viewing—even during actual shooting. There is no beam-splitting and no light loss; no parallax and no need for extra finders.
- It is equipped with registration pin assuring absolute frame registration and rock-steady pictures.
- A built-in electric motor drive permits uninterrupted filming—no need to stop and wind a spring.
- By employing a diverging turret, 3 lenses from extreme wide-angle to 300mm telephoto can be simultaneously mounted—without physical or optical interference.

There are a host of other features that equip the Arriflex 16 for every possible type of professional filming: Footage and Frame Counters—Tachometer—Detachable Matte Box—400 ft. Accessory Magazine, etc. Its extreme compactness and light weight (only 7½ lbs. with Matte Box) makes it also ideally suited for hand-held shooting.

The quality, performance, and exclusive features of the Arriflex 16 have created a great demand for this camera. To assure earliest possible delivery, we strongly urge you to place your order now. And even though there is some delay, remember . . . the Arriflex 16 is worth waiting for.

ARRI

For complete information concerning Arriflex 16mm and 35mm cameras, and Arri film lab equipment, write to:

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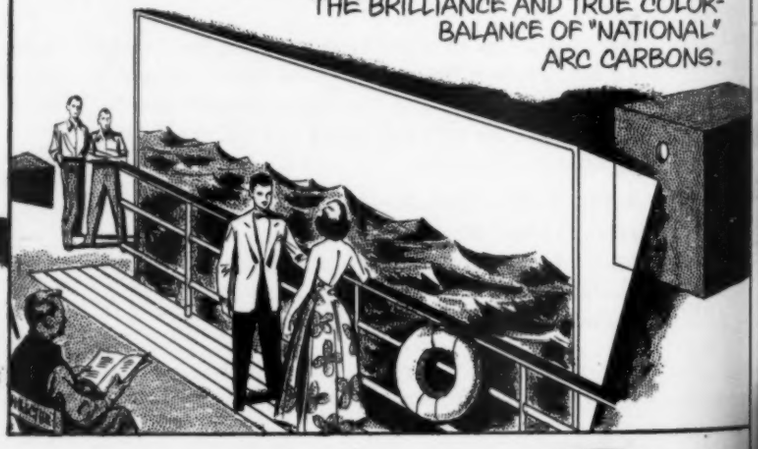
HOW IT STARTED...FIRST KNOWN USE OF ELECTRIC SET LIGHTING—BACKGROUND PROJECTION AT THE **PARIS OPERA** IN 1846. LIGHT FROM A PRIMITIVE ARC-LAMP WAS REFLECTED ON A SILK SCREEN TO REPRESENT THE RISING SUN.

STILL A VALUABLE ASSIST TO SPECIAL EFFECTS, REALISM AND PRODUCTION ECONOMY, MODERN **BACKGROUND PROJECTION** DEPENDS ON THE BRILLIANCE AND TRUE COLOR-BALANCE OF "NATIONAL" ARC CARBONS.



KEEPING PACE WITH THE NEW SCREEN SIZES AND FILMING TECHNIQUES, **"NATIONAL" CARBONS** CONTINUE TO AFFORD THE BROAD COVERAGE, PENETRATION, BRILLIANCE AND SHARP SHADOWS REQUIRED FOR TOP PRODUCTION VALUE.

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Features which make PROFESSIONAL JUNIOR *tops* in the motion picture, TV and commercial film world. First choice of professional cameramen. First choice of our Armed Forces.

Is your work "dragging" for want of an outstanding tripod? Get PROFESSIONAL JUNIOR—*the price hasn't changed in 15 years.* Get it today.

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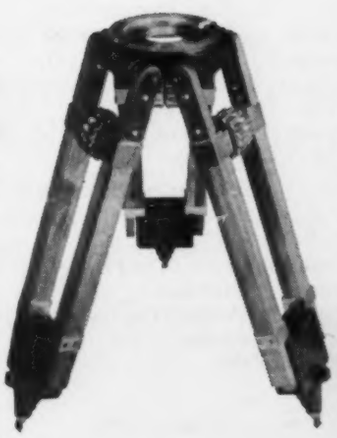
GEARED HEAD
interchangeable with Friction Head on same tripod.



New Professional Junior Adjustable wood
BABY TRIPOD
—for friction and geared Heads.
Has substantial shoe and spur.
Measures from floor to flange 25" extended—17" collapsed.

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16mm or 35mm
in 10 SECONDS!

Camerette 16/35

Reflex Motion Picture Camera

The perfect camera for the motion picture film maker working in both 16mm or 35mm color or black and white.

LOOK AT THESE ADVANTAGES—

- The same lenses, same motor drives, same sound blimp and accessory equipment used for both 16mm or 35mm — to convert simply change the magazine.
- Precise rugged movement
- Reflex viewing
- 200 degree adjustable shutter
- Divergent three lens turret
- Automatic film gate 400′ magazines 16 or 35mm — the 16mm magazine will accommodate daylight spools as well as standard core load.
- Light weight — only 14 pounds with 3 lenses, 400′ magazine, and 6/8 volt motor.

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Manufactured by Ets. Cine. Eclair, Paris

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CAMERA EQUIPMENT CO.

HOLLYWOOD STUDIO PRODUCTION

Feature and television film productions for which members of the American Society of Cinematographers were engaged as Directors of Photography during the past month.

AMERICAN SOCIETY OF CINEMATOGRAPHERS

ARTHUR MILLER, President
SOL HALPRIN, First Vice-President
JOSEPH RUTTENBERG, Second Vice-President
ALFRED GILKS, Third Vice-President
WALTER STRENGE, Treasurer
PHILIP TANNURA, Secretary
ROBERT DE GRASSE, Sergeant-At-Arms

•

FOUNDED January 8, 1919, The American Society of Cinematographers is composed of the leading directors of photography in the Hollywood motion picture studios. Its membership also includes non-resident cinematographers and cinematographers in foreign lands. Membership is by invitation only.

•

ALLIED ARTISTS

HARRY NEUMANN, "Spy Chasers."
HARRY NEUMANN, "Lord of the Jungle."

COLUMBIA

BURNETT GUFFEY, "The Calico Pony," (Technicolor; CinemaScope.)
BURNETT GUFFEY, "The Gentle Wolfhound."

METRO-GOLDWYN-MAYER

ARTHUR ARLING, "Love Me or Leave Me," (Color; CinemaScope).
ROBERT PLANCK, "The King's Thief," (Eastman Color; CinemaScope).
PAUL VOGEL, "The Bar Sinister," (Eastman Color; CinemaScope).

PARAMOUNT

RAY JUNE, "The Court Jester," (Technicolor; VistaVision).
WILLIAM DANIELS, "The Girl Rush," (Technicolor; VistaVision).
ROBERT BURKS, "The Vagabond King," (Technicolor; VistaVision).
LOYAL GRIGGS AND WALLACE KELLEY, "The Ten Commandments," (Technicolor; VistaVision).
DANIEL FAPP, "Artists and Models," (Technicolor; VistaVision).

20TH CENTURY FOX

MILTON KRASNER, "How To Be Very, Very Popular," (Color; CinemaScope).
CHARLES G. CLARKE, "Sir Walter Raleigh," (Color; CinemaScope).
JOSEPH MACDONALD, "House of Bamboo," (Color; CinemaScope).

UNIVERSAL-INTERNATIONAL

RUSSELL METTY, "All That Heaven Allows," (Technicolor).
HAROLD LIPSETIN, "The Private War of Major Benson," (Technicolor).
MAURY GERTSMAN, "The Spoilers."
IRVING GLASSBERG, "The Rawhide Years," (Technicolor).
RUSSELL METTY, "There's Always Tomorrow."
CARL GUTHRIE, "Francis In The Navy."
WILFRED CLINE, "The Second Greatest Sex," (Technicolor; CinemaScope).

WARNER BROTHERS

PEVERELL MARLEY, "I Died A Thousand Times."
PEVERELL MARLEY, "Illegal."
HAROLD WELLMAN, "The Animal World," (Technicolor).
TED MCCORD, "The Jagged Edge," (Warnercolor; CinemaScope).

INDEPENDENT

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HENRY SHARP, "The Beast of Hollow Mountain," (EastmanColor; CinemaScope), Nassour Studios.
LEE GARMES, "The Deadly Peacemaker," Sam Goldwyn, Jr. Prodns.

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LUCIEN ANDRIOT, "Where Were You?" "It's A Great Life," and "The Life of Riley."
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EDWARD COLMAN, "Dragnet."
ROBERT DEGRASSE, "Make Room For Daddy," and the "Ray Bolger Show."
GEORGE DISKANT, "Four Star Theatre."
KARL FREUND, "I Love Lucy," December Bride," and "Our Miss Brooks."
FREDRICK GATELY, "Mayor of the Town."
SID HICKOX, "Willy."
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JACK MACKENZIE, "Public Defender," and Passport To Danger."
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VIRGIL MILLER, "You Bet Your Life."
HAL MOHR, "The Bob Cummings Show," and "Life With Father."
NICK MUSURACA, "Lineup."
KENNETH PEACH, "Here Comes Donald."
ROBERT PITTACK, "The Lone Ranger," and "Private Secretary."
WILLIAM SICKNER, "The Whistler."
MACK STENGLER, "Life With Elizabeth," "Florian Zabach Show," and "It's Fun To Reduce."
HAROLD STINE, "Superman," and "Korla Pandit Show."
ALAN STENSVOLD, "Andy's Gang."
WALTER STRENGE, "Waterfront," "My Little Margie."
PHILIP TANNURA, "The Burns and Allen Show," and "The Jack Benny Show."
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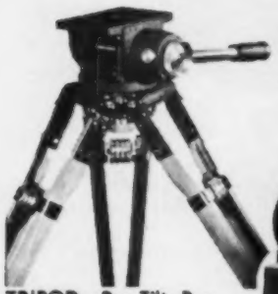

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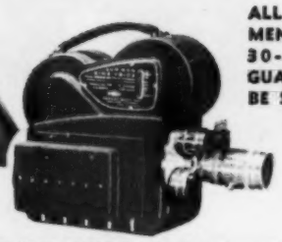

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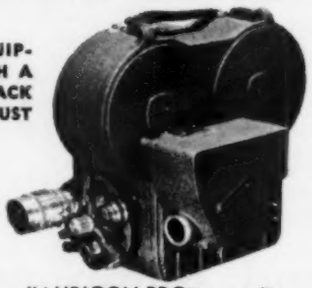

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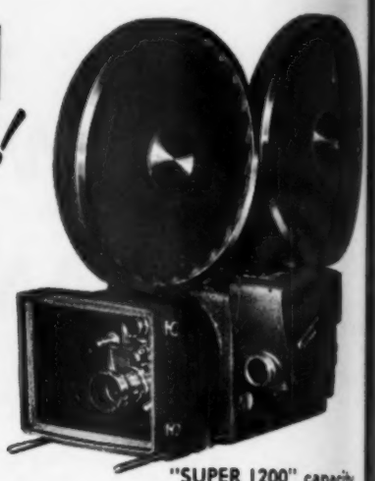

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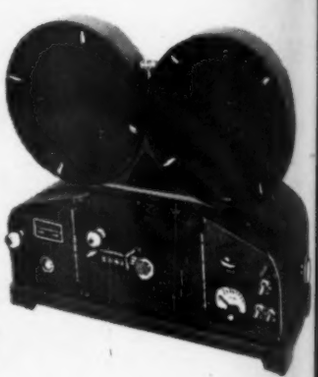

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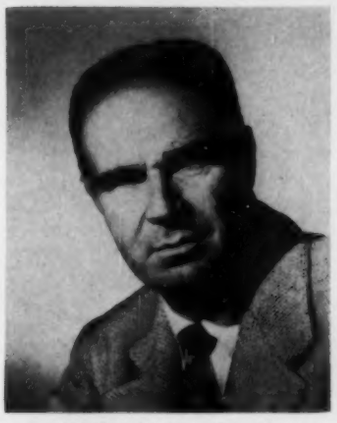
"Oscar" Nominees

for the best cinematography of 1954



CHARLES LANG, JR., ASC
"Sabrina"

NINE DIRECTORS of photography—eight of them members of the American Society of Cinematographers—have been nominated for Academy Awards for achievement in motion picture photography for 1954.

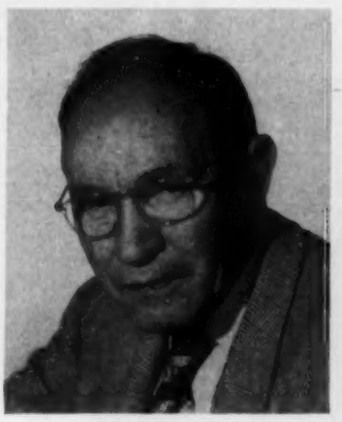
For the first time in the history of the Academy Awards, the nominations in all categories were presented publicly via nation-wide telecast on the evening of February 12th. While technically, it is the motion picture productions that are nominated for awards in the various classifications, when it comes to the presentation of the awards, these are made to the artist or craftsman whose individual contribution resulted in the Academy nomination.

Thus, five black-and-white and five color productions completed and released during 1954 have been nominated "For the best achievement in cinematography," as prescribed by the Academy's voting procedure. The productions, and the names of the directors of photography who filmed them are:

BLACK-AND-WHITE

"Country Girl," (Paramount), John F. Warren.

(Continued on Page 166)

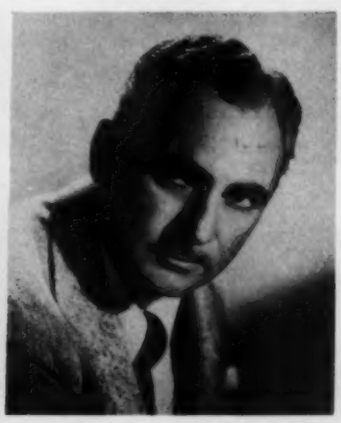


JOHN SEITZ, ASC
"Rogue Cop"

LEFT—JOHN F. WARREN,
"Country Girl"

CENTER—WM. V. SKALL, ASC,
"The Silver Chalice"

RIGHT—LEON SHAMROY, ASC,
"The Egyptian"

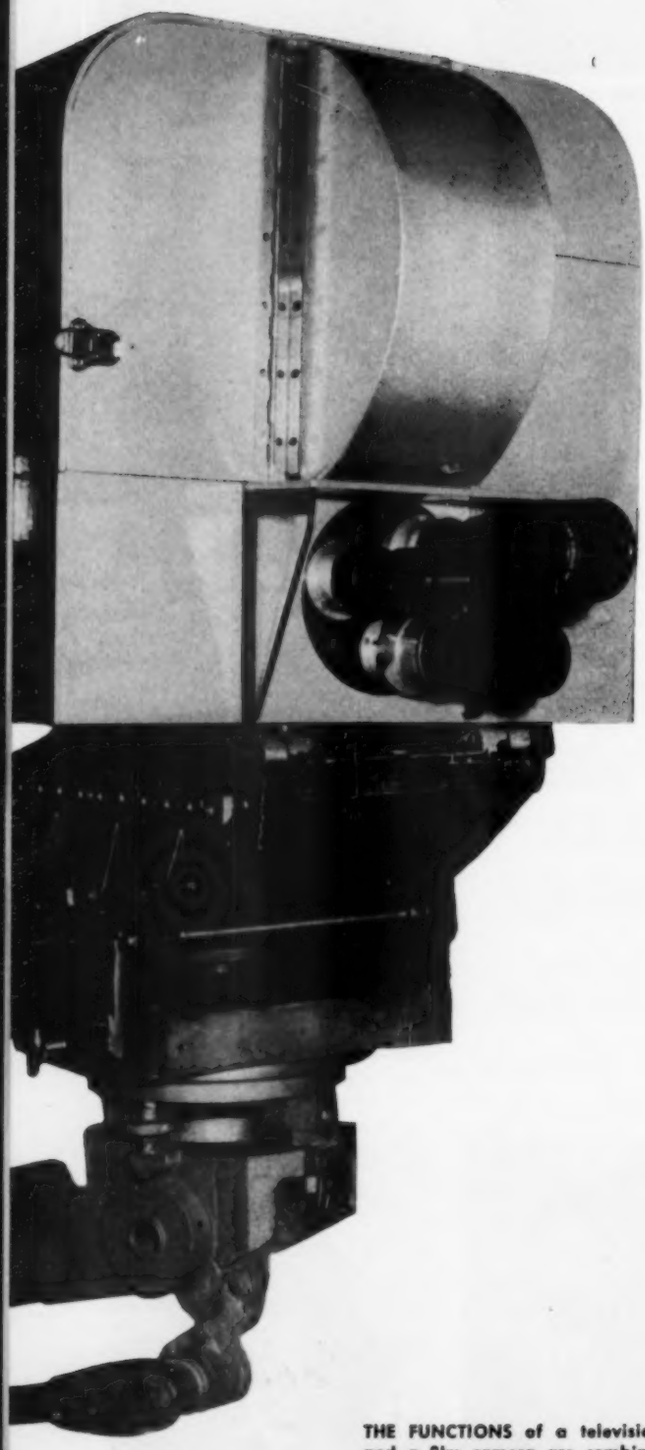


The Video-Film Camera

New dual-purpose camera will simultaneously photograph a show for live television and record it on film.

By AL SIMON

Production Supervisor, McCadden Corp.



THE FUNCTIONS of a television camera and a film camera are combined in this new video-film camera, which picks up and transmits a television show at the same time it records the show on film.

THE WEDDING of electronics and film in a single, dual-purpose video-film camera was inevitable.

During the shooting of my first television show on film in May, 1951, I saw the advantages such a camera offered the producer of TV films as well as television stations: the ability to televise a show "live" and at the same time record it on motion picture film for delayed broadcast. Another advantage is that the arrangement would make possible a practical electronic viewfinder, enabling the cameraman and others to see the scene exactly as it is being picked up by the camera lens. It would also make possible for the first time the use of slave monitors in the filming of shows with multiple cameras (such as "I Love Lucy") which would permit the show director to observe the coverage of each camera from a remote position on the stage. (See cover illustration.—ED.)

Unaware of the complexities of optics or of the continuing rapid advancement of electronics, I nevertheless ventured into the designing and production of such a camera. Since that "day of decision," the ensuing four years have been filled with many anxious moments. Today, the video-film camera envisioned above is a reality. Its first public demonstration was given recently before a most critical audience, the men who are eventually to use it—members of the American Society of Cinematographers.

The video-film camera, which is pictured on this page, is capable of transmitting a live image via television, and at the same time recording the same image on 35mm motion picture film—both images identical in field because both are picked up by one and the same lens.

It works this way: an image is picked up by the camera by means of a regular photographic lens, which transmits it to the film plane in the usual manner. Between the lens and the film, a beam-splitter is interposed which causes a duplicate image to be picked up by the vidicon tube of the electronic side of the camera. The "camera" is actually two cameras in one: a film camera and a complete TV camera.

Uniting the two types of cameras in a single unit made possible the electronic viewfinder, with outlets for a number of remote monitors, which industry cameramen have long hoped for. The electronic finder eliminates entirely the old parallax

problem because the image seen on the finder screen is *exactly* that which is recorded on the film and by the TV pickup tube.

As the accompanying photos show, a blimp, 18" x 21" x 21" houses the motion picture camera, electronic components, viewfinder and vidicon pickup camera. A cable extends to a master monitor having a 10-inch screen. Additional monitors may be connected at any time. Swinging the various lenses into place is accomplished as easily as with television cameras.

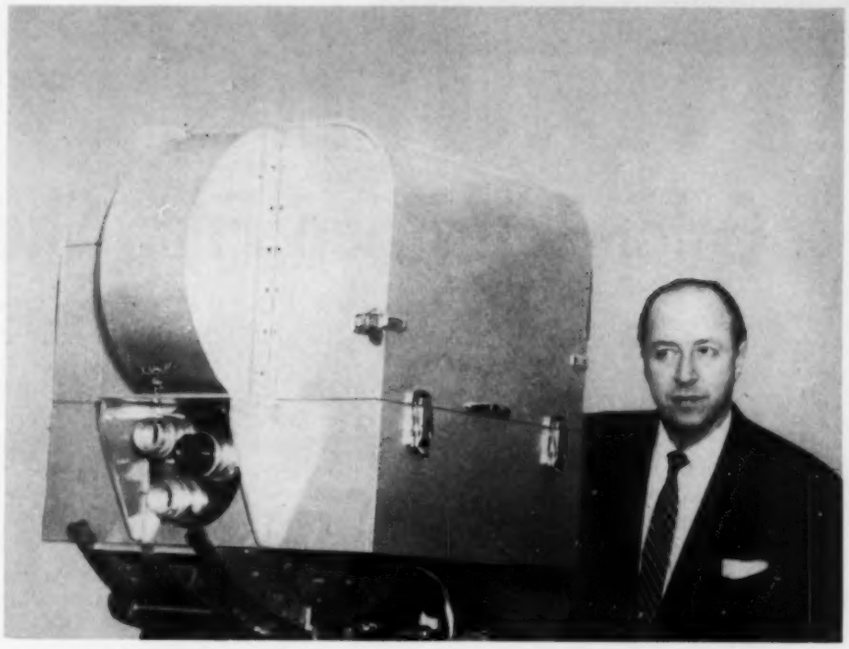
Film loading requires only two steps: opening cover of the blimp (to which is attached the electronic finder tube) exposes the film magazines. By depressing a catch, the electronic camera unit swings out of the way, affording access to the film movement, gate, main sprocket and film-retaining rollers.

Since the development of this camera was first announced, directors of photography and some of the operators in the industry have contributed a number of ideas for further enhancing its effectiveness, not only for television but in its application to motion picture production generally.

For example, when we originally set up the multiple film camera operation for photographing the "I Love Lucy" show, our purpose was to utilize film cameras in the same manner as live television cameras were being employed at that time—with the camera operators and the grips instructed via intercom phone system by the director. A drawback to this system, however, is that the director, usually located in a remote booth on the stage, cannot see *exactly* what each camera is recording. Using our new dual cameras on a show of this type, the director of the show as well as the director of photography can see, on their remote monitors, what each camera is picking up. When errors occur, they can be observed immediately as the action takes place instead of having to wait until the dailies are printed.

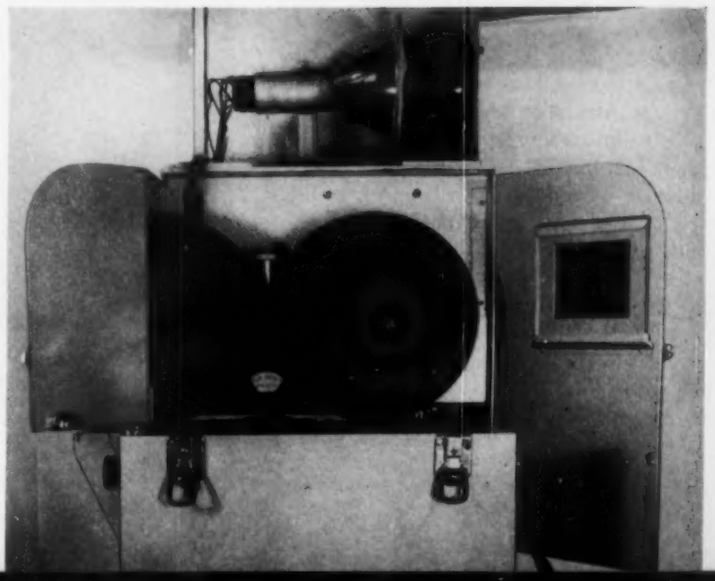
A feature receiving serious consideration is the addition of a cueing device in the camera so that when two or more cameras are used in recording a show like "I Love Lucy," the various cameras can be cut in and out, making it possible to edit to some extent the production as

(Continued on Page 164)



THE AUTHOR, Al Simon, behind the video-film camera observing image on the electronic viewfinder screen. Finder image, the TV picture, and the image reaching the film are identical in field, as all three are picked up by one and the same camera lens.

REAR VIEW of camera showing the electronic finder screen. Remote monitors afford convenient checking of scene being photographed by cameraman or the production director.



LOOKING INSIDE the camera. Here, one unit of sectional door of blimp, which is raised, is shown supporting the electronic finder tube. In lowered position it comes to rest before the aperture on door at right. Film magazine is readily accessible. Door section just below magazine is lowered to give access to camera mechanism for threading.

Color-Television Film Shooting Practices

By WILLIAM B. LODGE and HOWARD A. CHINN
Engineering Department, CBS Television, New York, N. Y.

THE FOLLOWING is the first comprehensive treatise published on the subject of producing motion pictures in color for color television. Written from the standpoint of the technical requirements of the telecaster, it was presented for the authors by Herbert W. Pangborn at the convention of the SMPTE in Los Angeles, October 19, 1954. It subsequently appeared in the December, 1954, issue of the SMPTE Journal. Because of the subject's importance to cinematographers everywhere, and in keeping with its policy to bring readers the latest technical data on all the newest applications of motion picture photography, American Cinematographer is reprinting the paper with permission of the authors and the SMPTE.—EDITOR.

THE SKILLED professional is well acquainted with the staging, lighting, camera, film and sound recording techniques that result in successful color motion pictures for direct screen projection; however, relatively few have had the opportunity to study in detail the reproduction of film over a color-television system. Accordingly, this paper has been prepared as a tentative guide to the factors that should be taken into consideration when shooting motion-picture film for color-television applications.

In approaching the problem of making motion pictures for color television. it should be recognized from the outset that the requirements of film for television differ appreciably from those of film for theater projection. An elementary but striking example of this is the fact that for some time to come the end result will be viewed in both color and monochrome, depending upon the kind of receiver in the viewer's home. Also, as experienced television film producers have learned, television film should have a lower contrast range than theatre film. For these reasons alone, if the techniques used in shooting film for the theater are followed without modification, the resulting film is not likely to be of optimum quality for television use. On the other hand, if the requirements of the television system are kept in mind, motion pictures containing all the artistry, creative expression and novel effects that may be desired can be produced.

As an aid to those responsible for the production of color film for television, this report contains tentative recommendations with regard to staging, lighting, cameras, film and sound recording. In a field developing as fast as color television, it would be unwise to present these suggestions as final. Nevertheless, they are based on considerable experience in both the film and television field and, though further experience will doubtless produce some changes, they should be satisfactory interim guides to the filming methods of the color medium.

Some producers of television films have had considerable experience with color. Others have worked entirely with black-and-white stock. Since this handbook of recommended practices is intended to help both groups, it is hoped that the skilled professional will forgive treatment of certain subjects that, to him, are obvious.

The idiosyncrasies of current color-television equipment require that certain precautions be observed in staging practices when making color motion pictures. Further, as already indicated, staging (and lighting) practices must be designed from the viewpoint of satisfactory reproduction on both color *and* mono-

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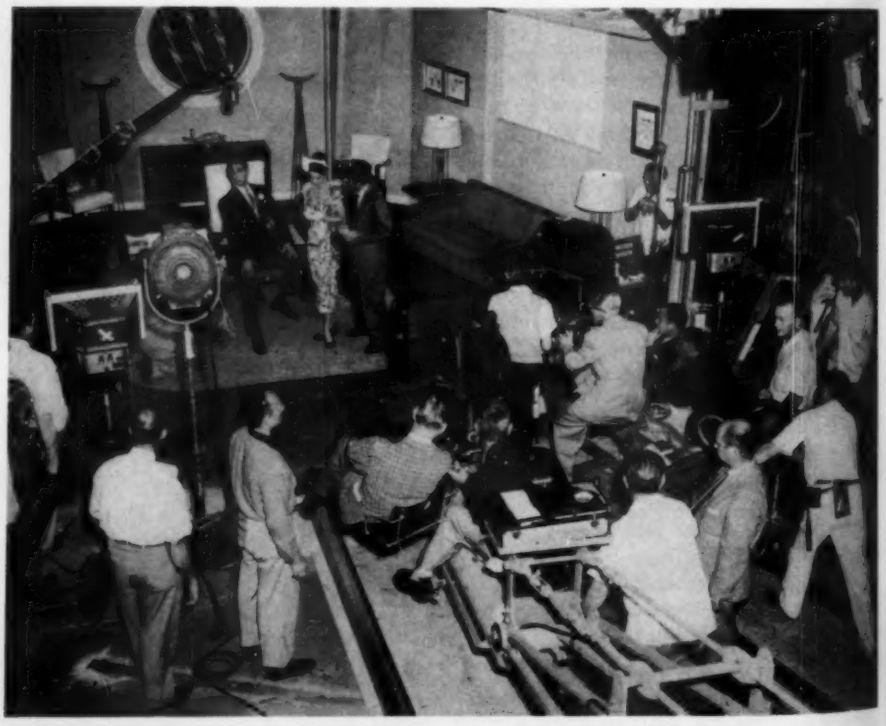

PIONEER in shooting films in color for color television is Ziv Television Programs, Inc., Hollywood, with production of its video shows now 100% in color. In above photo, director of photography Curt Fetters, using three dolly-mounted Mitchell cameras and Eastman Color film, is shooting a scene for the Eddie Cantor Comedy Theatre," newest Ziv TV film series.

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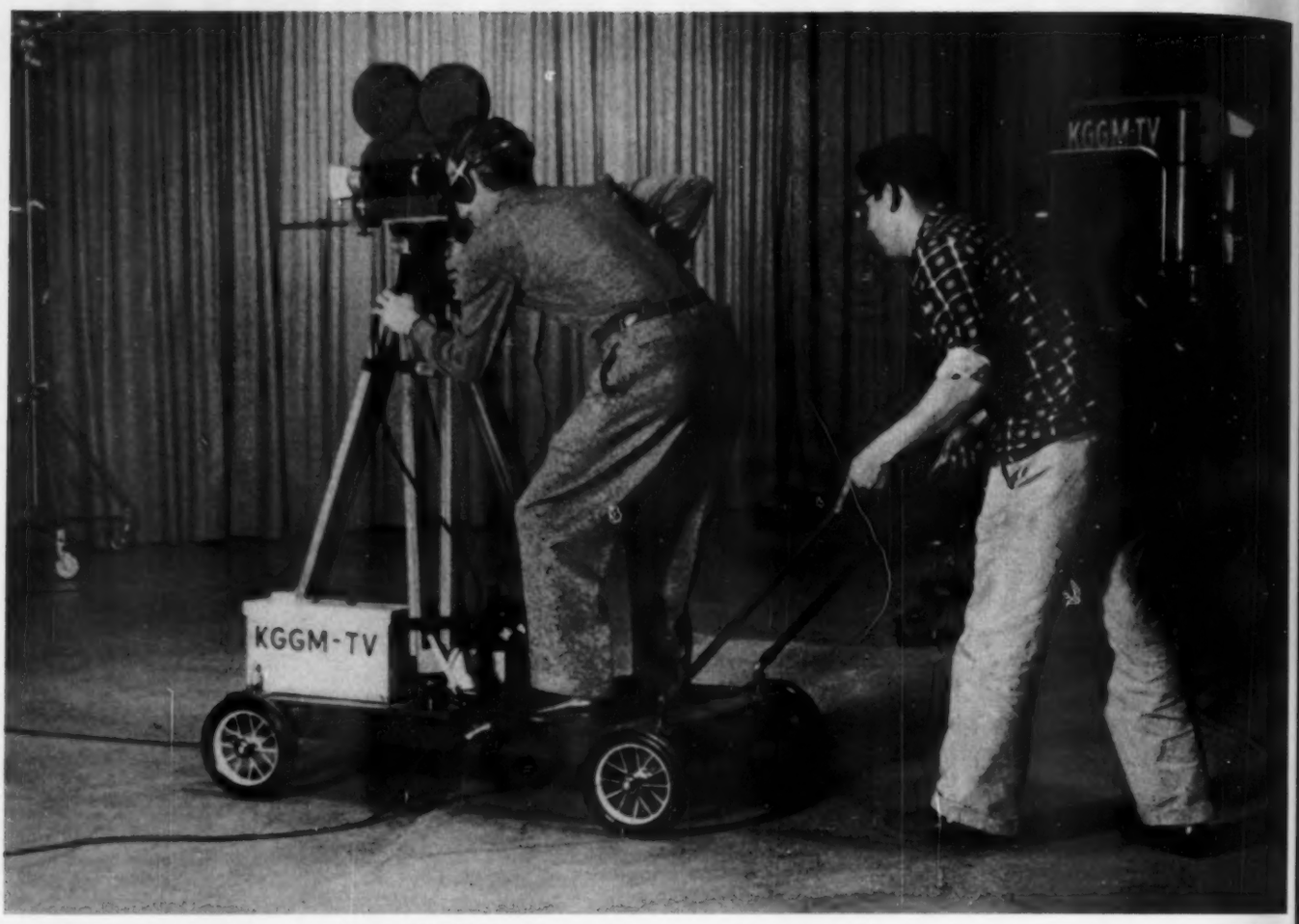


FILMING a "commercial" in the studio of KGGM-TV, Albuquerque, New Mexico. Tom Pillsbury, the station's film unit photographer, is behind the Parrish-converted 16mm Cine-Voice single-system sound camera. Pillsbury made the camera dolly, as he did most of the other equipment he uses for shooting, titling and processing the station's spot news and advertising films.

Film Unit Operation In The Small TV Station

By TOM FRAZIER SMITH

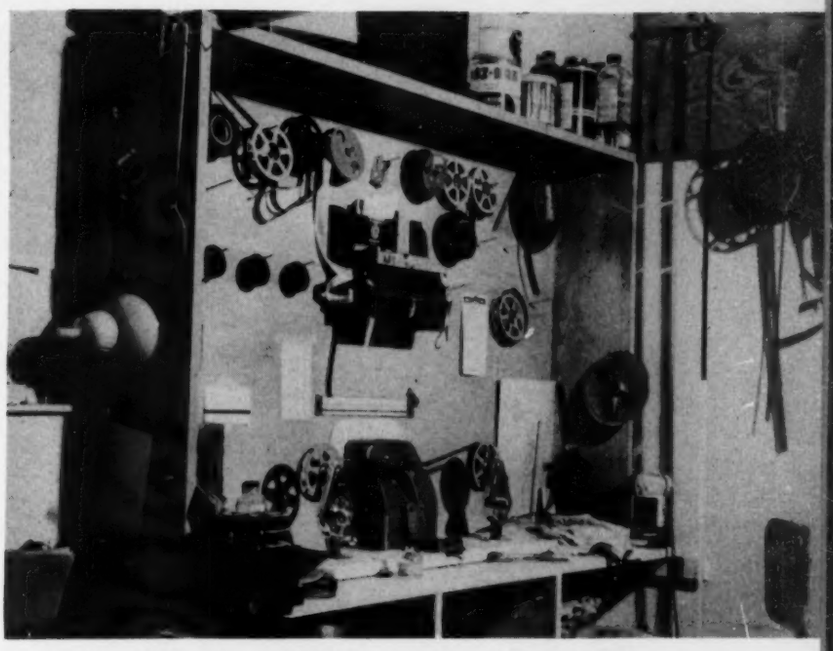
Photos by Thomas G. Pillsbury, KGGM-TV

IF I WERE asked to choose a symbol for the television industry—its film units in particular—it would be a medieval execution scene in which the victim was strung between two wild horses headed in opposite directions. One horse would be labeled "Production" and the other, "Budget." If you work in television, you already know who the guy in the middle is—the lone film unit operator working on a "soda pop" budget and using homemade equipment. You'll find him in just about every small, "local" TV station throughout the country.

No unit in an independent TV station operation suffers more from the demands of production quality and budget limitations than the photographic department. It is too often regarded as an unwelcome stepchild by management—so much so, that many stations now have dispensed with their film units entirely, and farm out whatever photographic or film work they have. There are a great many stations, however, that believe a film unit pays for itself through the services it offers local sponsors in the way of slides and motion pictures at cost. In addition, a film unit can render many important services to the station.

KGGM-TV at Albuquerque, New Mexico, is a typical small, independent station. Here photographer-artist Tom Pillsbury is a "jack-of-all-trades." Instead of costly motion picture equipment, lights and other necessary accessories, Pillsbury works mostly with equipment which he built himself: a negative film processor; slide copy stand; camera dolly, and flood lights made of sheet iron and soldered into shape. In a tiny cubicle 7 by 14 feet in size, Pillsbury does everything from art work for slides and film titles to running out a fast news

COMBINATION titler and copying stand built by Pillsbury. Here titles and slides are photographed. Note mask which shows correct TV screen area.



EDITING CORNER where KGGM-TV's cameraman edits and titles the station's TV newsreel films, and sponsor's spot ad announcements.

film for the 6:20 show after shooting it at 4 p.m.

More specifically, Pillsbury's film unit operation is regularly called upon to perform the following services:

Shoot silent or s.o.f commercials (spot announcements),

Shoot silent or sound news feature stories,

Make slides for station or sponsor,

Shoot publicity stills,

Do the station's art work—original art for slides and film titles, posters and signs for use on-the-air and at-point-of-purchase, and make sets and props for studio use.

For executing these tasks Pillsbury has at his disposal the following:

(1)—An Auricon Cine-Pro 16mm single system sound camera, modified by Fred Parrish to take either 400-foot or 1200-foot film magazines, and having a prism focusing attachment for lining up ultra-closeups (titles, etc.). There is a complement of four lenses for the camera: 15mm, 25mm, 50mm, and 100mm.

(2)—A Bolex H-16 silent camera on which the above-described lenses are also used,

(3)—A portable camera dolly—"homemade" and described later,

(4)—A 35mm still camera,

(5)—View camera for publicity stills,

(6)—Portable lighting equipment: two 4-bulb floods on wheels, four to six single reflector-floods, and "spots" for highlights and fill light.

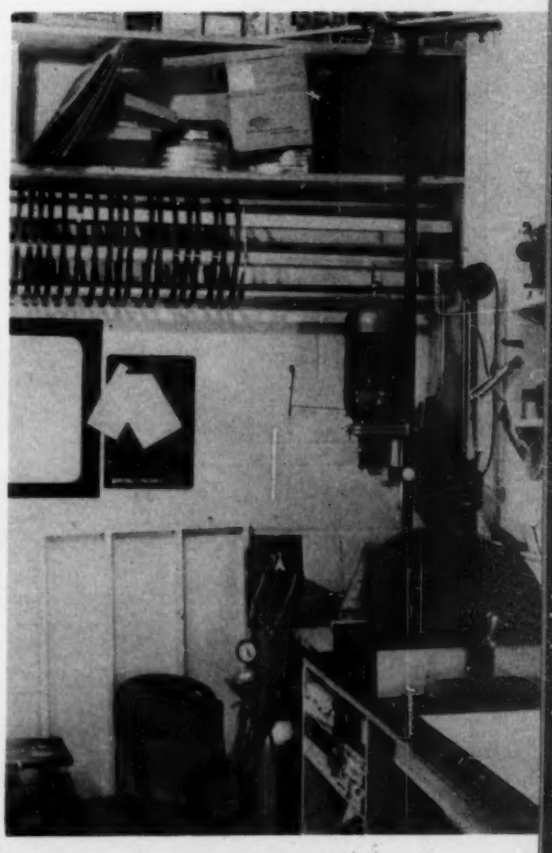
(7)—Colortran equipment,

(8)—Film developing, titling and editing equipment.

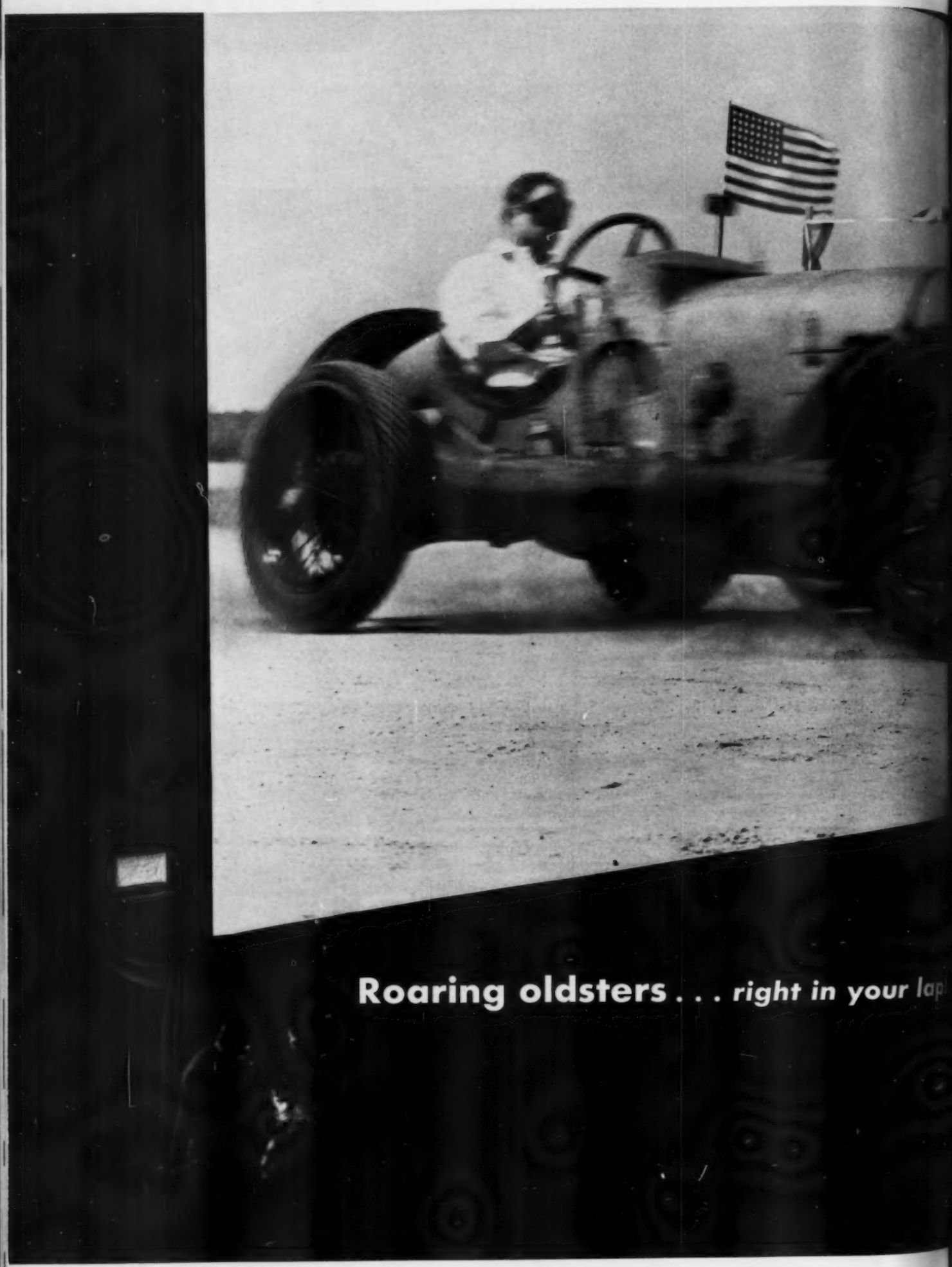
Inventive ability—an attribute the Army likes to refer to as "field ingenuity"—is Pillsbury's most valuable asset in the battle between budget and production. Much of the above described equipment was constructed by him as the need for it arose. There is the sturdy camera dolly made of ¾-inch plywood set on a frame of two-by-fours, with rubber-tired wheels added. Total cost of materials, $20.00.

In making his lighting equipment, he aimed at getting optimum lighting combined with maximum portability. Result,

(Continued on Page 162)



HOMEMADE film processing drum and drying rack enable Pillsbury to develop newsreel and sponsor ad film footage quickly to meet ever-present deadlines.



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Ted McCord, A.S.C.

Because he had never before shot a picture in CinemaScope and color, and because Elia Kazan wanted no "formula" cinematography, Ted McCord was chosen to do

The Photography Of "East Of Eden"

By ARTHUR GAVIN

"EAST OF EDEN," which Elia Kazan produced and directed for Warner Brothers, is a picture that will be talked about for a long time to come. From start to finish and in every department it is a superlative accomplishment; it will be prominent a year hence for the number of nominations for Academy Awards it unquestionably will receive.

When John Steinbeck's "East of Eden" was published in 1952, it was acclaimed by the public and the critics as one of America's great novels. The motion picture is based on approximately the last fourth of this monumental novel about two families who settle in Salinas Valley, California. The action of the film takes place in 1917 and depicts the clashes of personality between Adam Trask, a devoutly religious man (Raymond Massey), and his twin sons, Cal (James Dean) and Aron (Richard Davalos). Both lads fall in love with the same lovely girl, Abra (Julie Harris), who is a classmate of theirs at Junior College. How the two sons react when they discover the shady occupation of the mother they had believed dead since their infancy is dramatically presented.

Kazan spent months in selecting the cast for this picture from actors available in Hollywood and New York. The majority of the actors he finally chose are relatively unknown to motion picture audiences. Kazan's criterion was not to obtain name stars but the actors best equipped to give the most realistic interpretation of their particular roles.

And he followed the same approach in choosing his director of photography—Ted McCord, A.S.C.

When Kazan told Ted the picture was to be filmed in CinemaScope and color, the latter wanted to withdraw from the assignment, saying that despite his long career as director of photography, he had never photographed a picture in CinemaScope, and had done nothing important in color.

"All the more reason why I want you," said Kazan. "You won't have any preconceived notions about CinemaScope and color. You won't be following formulas, but will be more inclined to use your imagination, to freely explore and create. And that's the kind of photography I want for this highly dramatic and unusual story."

Much of the picture was shot in the actual locale of the novel in Salinas. Here, in a district known as the world's salad bowl, the sequences were filmed in which Adam embarks on his ill-fated lettuce refrigeration project.

In nearby fields the scenes in which Cal is nursing along his bean crop were photographed. The shooting of these scenes were synchronized with the farmer's planting so that the bean crop would be precisely three inches in height at the time filming began.

For the sequence which shows the freight train loaded with Adam's crudely refrigerated lettuce, arrangements were made with the Southern Pacific Railroad to secure a locomotive which actually had made freight runs through Salinas in 1917. This grizzled veteran of the rails had travelled approximately thirty-seven million miles before making its screen debut.

The exterior scenes in the town where the boys' mother, Kate, operates her gambling house were photographed in the picturesque little town of Mendocino, California, in the heart of the beautiful redwood country.

Though as much shooting as possible was done on location, considerable work remained to be done at the studio. This involved the building of elaborate sets designed by art directors Mal Bart and James Basevi.

Since in up-todate, 1954 Salinas television antennae and other marks of modern progress are omnipresent, a replica of Salinas as the town looked in 1917 was constructed on the Warner Brothers' back lot. The shops were built in the same wooden style then in vogue and their shelves and show-

(Continued on Page 169)

FILMING SCENES of Cal and Abra in the topmost gondola of a Ferris wheel for "East of Eden," involved use of several pieces of unusual equipment: the industry's largest camera crane on which Ted McCord mounted his CinemaScope camera; a telescoping parallel for the mike boom; and a giant construction crane from which was suspended the platform holding the necessary lights. The Ferris wheel was erected on the Warner Brothers Studio back lot, and the photography was done at night.

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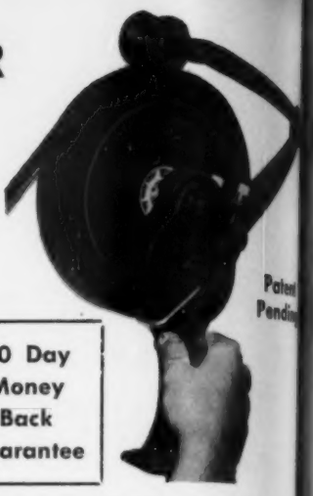

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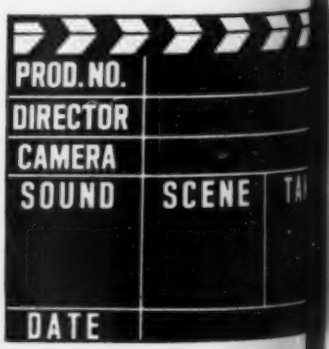

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DEMONSTRATION of new motion picture film-splicing method using tape was given recently before members of the American Society of Cinematographers by author W. R. Holm (in dark suit). New method employs unique splicer and "Mylar" tape.

Splicing Motion Picture Film With Tape

BY W. R. HOLM

Written for the American Cinematographer from a paper by V. C. Chambers and W. R. Holm presented at the SMPTE convention in Los Angeles, California, October 21, 1954, and subsequently published in the SMPTE Journal, January, 1955.

THE PHOTO PRODUCTS DEPARTMENT of E. I. Du Pont de Nemours & Company is preparing to introduce a new, synthetic safety film support known as "Cronar" polyester photographic film base. This new base is extremely tough, possessing outstanding strength and flexibility even at low temperatures.

Along with the development of "Cronar" base, the Du Pont Company has been investigating several techniques for splicing motion picture film. This has been done for two reasons. First, "Cronar" cannot be spliced with the film cements used to splice cellulose triacetate film, even though it can be spliced to itself with a cement formulated specifically for the purpose. Second, because solvent cement splices are well-known for their tendency to fail unexpectedly, it was hoped that splicing techniques could be developed which would yield a stronger, more dependable splice with any film base.

One of the techniques investigated appears to have real advantages over cement splicing for certain motion picture and television applications. It yields strong, durable splices on any kind of film base, without the need of scraping or cementing. This technique makes use of a thin, perforated, transparent adhesive tape made from "Mylar" polyester film. It was suggested by Hollis W. Moyse of the Du Pont Photo Products Division.

Pressure-Sensitive Tape Splices

Tape-splicing of motion picture film is not new. Our tape, however, is made from "Mylar" polyester film only 1 mil thick, coated with a superior-type, trans-

(Continued on next page)

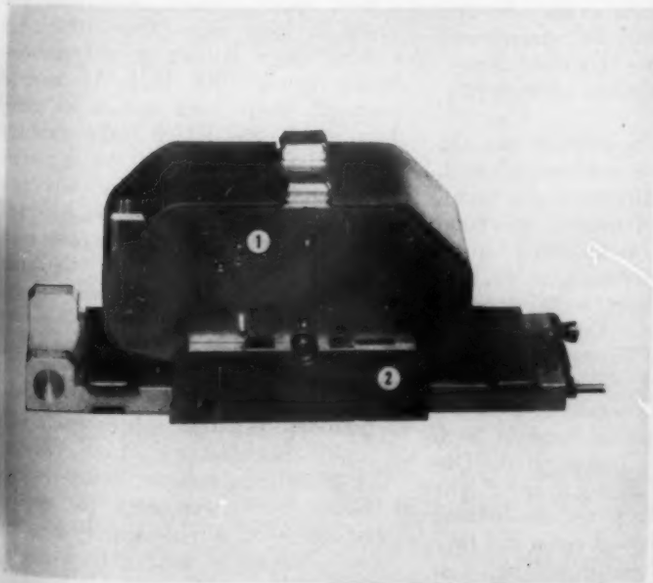

FIG. A—EXPERIMENTAL model of radically new motion picture film splicer. Comprising two sections—1, the tape holder and applicator, and 2, the splicer base—splicing is accomplished by binding film sections together with "Mylar" tape.

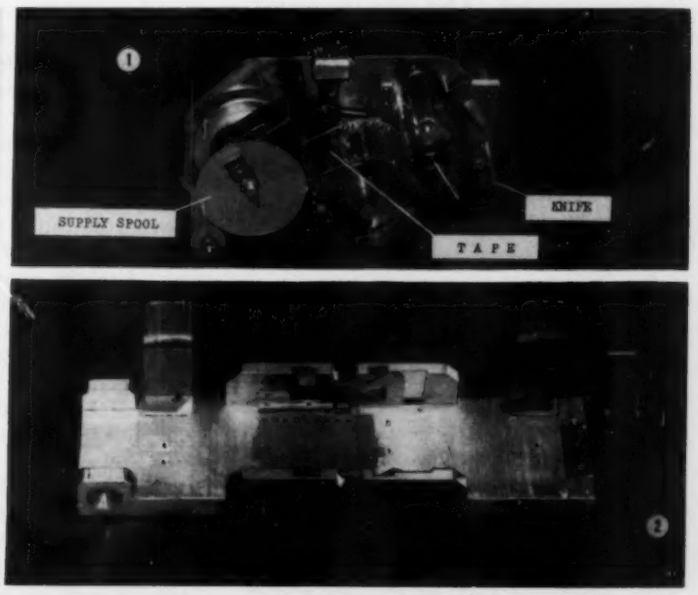

FIG. B—Photo 1 shows tape holder and applicator with cover removed—more properly termed the Dispenser Unit. Note that the gummed "Mylar" tape has standard 35mm perforations. Photo 2 shows base with Dispenser removed.

parent adhesive about 0.5 mil thick, making the total tape thickness only about 1.5 mils. Splices are made by applying pieces of this tape two frames in length to both sides of the film, as shown schematically in Figure C. Figure C-A shows a butt splice, the total thickness of which is 9 mils for a 6 mil film. Figure C-B shows a lap splice, the total thickness of which is 15 mils. This latter splice may be made either to full-hole or to half-hole dimensions without significantly affecting the strength of the splice. Neither the butt nor the lap splice requires scraping or cementing.

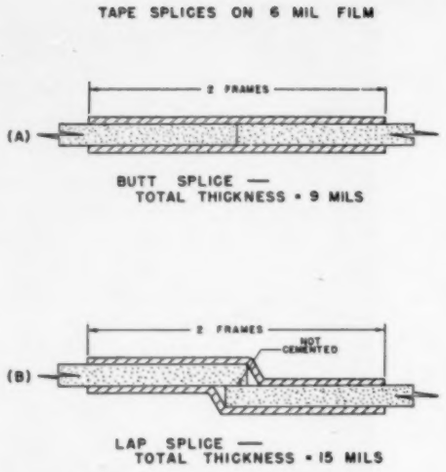

FIG. C—Splices are made by applying pieces of "Mylar" tape two frames in length to both sides of film. (A) is butt splice having total thickness of 9 mils. (B) is lap splice, having a total thickness of 15 mils. The film itself is 6 mils thick. Tape splices require no scraping or cementing of film.

The Tape Splicer

When applying the tape to the film, two conditions must be met if the splice is not to be apparent on the screen. First, the edges of the tape must be outside the frame, second, the tape must be applied smoothly, without wrinkles or trapped air bubbles. The splicing device shown in Figure A is an experimental model that we have developed.

As can be seen from Figure B-1, the perforated tape is fed from the supply spool onto the sprocket wheel of the tape dispenser, with the non-adhesive side of the tape against the sprocket. This wheel is slotted in four places around its circumference so that the knife-blade shown can cut a two-frame length of tape to be dispensed.

To make a splice, the two lengths of film to be joined are positioned onto the registering pins of the base unit, shown in Figure B-2. Actuating the plunger at the forward end of the dispenser unit causes the knife-blade to cut a two-frame length of tape on the sprocket wheel. Now the dispenser unit is positioned into channels in the base unit and moved from right to left. This rolls the precut length of tape off the sprocket wheel and applies it, in register, to the films to be spliced. The film is then turned over and the operation repeated to complete the splice. The dispenser cannot be positioned into the channels of the base unit unless the knife-blade plunger has been actuated to cut off a two-frame length of tape.

Laboratory Data

"Mylar" film and the adhesive layer are essentially transparent and colorless, and when applied to both sides of a motion picture film, reduce the optical transmission of the two frames involved by only about 7%, an amount which allows the splice to go completely unnoticed on the screen.

Stress-strain measurements on both butt and lap splices show that these splices can withstand stresses far in excess of those which the perforations can withstand. Tensile tests carried out over a range of relative humidities show the strength of these tape splices to vary but little with change in relative humidity. At low humidities, where solvent cement splices tend to become weak, the tape splices withstand stresses more than five times the amount required to completely strip the perforations from the film. At high humidities, 95% to 100%, there is some reduction in ultimate strength, though here again the test splices withstood stresses much in excess of the strength of perforations as they run on sprockets. Too, it will be remembered that unspliced cellulose triacetate film itself shows reduced strength at high relative humidity.

The effect of temperature on the strength of tape splices was investigated, and no significant difference was found in the stress range of normal operation of motion picture film handling equipment. Even at temperatures as high as 140°F the tape splices were stronger than the perforations. And at temperatures as low as −26°F, the tape splices showed good strength, with no tendency to become brittle and weak.

Creep of the adhesive bond at high temperature was also investigated. Obviously the rate and duration of the stress application affects the result here, and under sustained load creep did take place. But it required several hours at a temperature as high as 120°F for a sustained load of more than five pounds to cause the tape splices to fail. Compare this with the fact that a five pound load will strip the perforations from cellulose triacetate film in less than a second! Furthermore, motion picture equipment in normal use never applies a long continued stress to film, and therefore uses this new type of splice under most advantageous conditions.

No measurable slippage of the tape splices could be induced by continuous high-intensity arc projection of film loops, by aging tightly wound rolls, or by repeated rewinding of rolls under tension at 150°F. In the course of these operations no tendency of the adhesive to bleed was noticed, even at the temperature above 100°F. During high intensity projection of loops of black-and-white film, blistering of the emulsion took place before the tape splices were affected by the heat.

Creep and the dynamic characteristics of the splices were found essentially unaffected by change in relative humidity from 5% to 100%.

Because of the high tear strength of the "Mylar" polyester film from which the tape is made, the tear strength of the tape splices is greater than that of cellulose triacetate film.

Both lap and butt splices have been cleaned with all kinds of commonly-used film cleaning solutions, without loosening the tape. Yet these tape splices can be taken apart and the films respliced without any loss of frames.

Laboratory Projection Tests

Both lap and butt splices show good screen steadiness and run smoothly through a projector, though butt splices do tend to become noisy after 50 to 100 projections, due to the flexing of the butt joint. Lap splices, having greater stiffness do not show this effect.

Most splices tested have been projected in loops more than 1000 times without splice failure, even under conditions below 10% R.H. As must be expected, even with splices as these, there are factors which make some last longer than others. Yet the minimum number of projections for any tape splice we have made was 345 runs, and we have not had a tape splice come apart during projections. In fact, the great majority of tape splices have outlasted acetate film when attempts have been made to run them to destruction.

Other Applications For Tape Splices

Both lap and butt splices made with a tape manufactured from "Mylar" coated with an opaque, water-resistant adhesive have been used for splicing rawstock for both black-and-white and color processing, and the processing solutions did not loosen the tape. Tape splices may therefore be of interest to laboratories as an alternate for clip

(Continued on Page 168)

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FIG. 1—SCOTCH TRACK magnetic laminator, which applies magnetic oxide sound track material in strips to 16mm or 8mm motion picture films. Numerals identify location of the important components described in larger detail in the similarly numbered photos below. The humidity cabinet, which is not otherwise pictured, is shown at (4). (All photos courtesy Minnesota Mining and Manufacturing Company.)

Laminated Magnetic Sound Tracks For 16mm Films

New Scotchtrack laminator applies strips of magnetic track to films in 30, 50, or 100 mil widths by novel "dry" process.

By ARTHUR RESCHER
Capital Film Laboratories, Inc.

SINCE AUGUST of 1954, Capital Film Laboratories, Inc., Washington, D.C., has had in commercial operation a new machine—the Scotchtrack laminator—which has been somewhat facetiously referred to as a large-scale Scotch tape dispenser. Take some Scotch tape (magnetic variety), add some 16mm or 8mm motion picture film, press a button, and out comes a revolutionary, new type of magnetic sound track developed by the Minnesota Mining and Manufacturing Company. The product is formally known as "Scotch Brand Magnetic Laminate" or "Scotch Track." Termed a major improvement in magnetic sound-on-film, the process has met with marked success from its inception.

Developed by the largest producer of magnetic tapes and coatings today, the 3M method of applying a non-liquid magnetic track to motion picture film is done entirely automatically. The Scotch Track laminator bonds the special magnetic oxide track permanently to the film by a *dry* process employing no solvent or liquid magnetic dispersions. In the new process a layer of magnetic laminate material, actually the 3M Company's "High Output" magnetic oxide, is precision-coated at the factory on wide sheets of temporary plastic backing. The highly uniform sheets are then slit into the familiar quarter-inch rolls in the manner of regular magnetic broadcast tapes. After receiving this raw material, Capital Film Laboratories threads it into the applicator machine, then sets the micrometer controls for the proper width of stripe for the specific job.

The magnetic material is then laminated to the film. In the same operation the temporary backing is automatically stripped off, leaving only the "factory perfect" magnetic track. Bonding of the magnetic track to the film is accomplished by an electric heating element on the laminator, which activates an adhesive built into the laminate material. No heat is applied to the film. The new method is expected to benefit users of 16mm motion picture film in television, industry, education and government, as well as the 8mm and 16mm amateur movie fan. In addition to improved quality, the method offers faster sound tracking service to the film user. No liquid dispersions are involved, and there is no necessity for drying or set-up time. The film itself is never subjected to high temperatures in a curing compartment.

The new magnetic track can be applied with equal facility to either the

FIG. 2—View of pre-coater (lower left), the track slitter, and applicator (center) where track is bonded to the film.

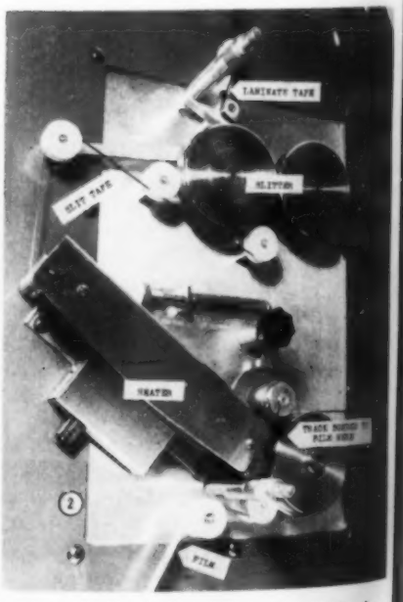


FIG. 3—Closeup of slitter-heater-bonding assembly, referred to at left. After track is applied film moves to right.

base or emulsion side of the film; to both color and black-and-white films; and in track widths of 30 mils for double-perforated film or in 50 or 100 mil widths for single-perforated film, depending upon whether the user wishes half the sound track area or the full sound track area coated.

The major advantages of magnetic sound to the film producer are greater output and absolute uniformity. Using the 3M Company's exclusive "High Output" magnetic oxide, the "Scotch" track provides from 5 to 12 db greater signal with no increase in distortion or noise. This is highly advantageous in magnetic projectors (where hum fields exist because of the proximity of the reproduce head to the drive motor and power transformer) since the 5 to 12 db increase in output gives substantially improved signal-to-noise ratio. Also, since the surface of the track is extremely smooth and flat, the magnetic head on the projector contacts the oxide track perfectly, resulting in considerably better response to high frequencies.

Uniformity of the coating under the new process is insured because the magnetic track laminate tape is coated in wide widths on precision equipment at the 3M Company factory, where coating thickness and output is held to the same standards as those of present-day high-quality magnetic tape. As a result, output uniformity is controlled within plus or minus ¼ db within a reel and ½ db from reel to reel. The control does not depend on the skill of the operator during the film tracking process, but is built into the laminate tape itself. Since the process is dry and the laminate material is slit from wide widths, no "beads" or high edges are left on the track surface to cause excessive projector head wear.

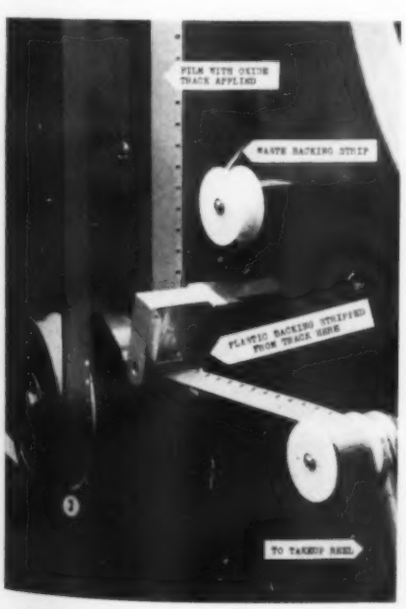


FIG. 4—Following bonding of oxide magnetic track to film, the plastic base is removed from the track and discarded.

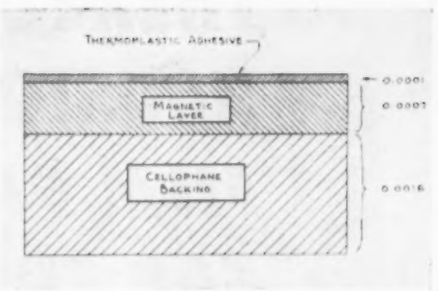


FIG. 5—Crosssection diagram of Scotch Track. The cellophane backing is a temporary carrier for the oxide track and is removed after track is bonded to film.

Of additional importance is the fact that the laminating method of applying magnetic sound tracks to spliced films eliminates spreading, or cracking of the track at the point of splice, where the laminate track is uniformly applied. The laminating tape itself is of special construction. As may be seen in the cross-section diagram, it consists of a two-layer coating on a plastic backing 0.0016-inch in thickness. The first or magnetic layer consists of a coating 0.0007-inch thick of special "high output" magnetic oxide dispersed in a resin binder. The magnetic layer is applied to the plastic base by the same coating methods used for "Scotch" brand magnetic tapes. The second layer of the coating consists of a 0.0001-inch layer of a thermo-plastic type adhesive designed to be activated by heat. This adhesive forms a permanent bond between the magnetic track and the film when applied by heat and pressure in the laminating process.

The "Scotch" Brand magnetic laminator now in operation at Capital Film Laboratories consists of five main components, some of which are shown in detail in the accompanying photographs:

(1) A pre-coater located in the lower left-hand corner of the machine (Fig. 2). Here a small wick moistened with a cleaning solution cleans a narrow path on the film where the magetic track is to be applied. The solution is harmless to the film.

(2) A slitter (Fig. 3), consisting of a pair of rotating knives, slits the ¼" laminate tape to the desired track width. Two micrometer controls adjust width selection and track placement. At this point the excess width of the laminate tape is carried to a take-up reel for later use.

(3) A thermostatically-controlled electric heater unit (Fig. 3) through which the laminate tape passes next, "activates" the adhesive. The laminate tape is then rolled under pressure into a firm and permanent bond with the film.

(4) A humidity cabinet (right side of machine (4) in Fig. 1), afterward conditions the film at 90% relative humidity and prepares the temporary plastic backing of the laminate tape to be stripped off easily. An "elevator" incorporated in a cabinet provides enough slack film to allow the take-up drive to be stopped and reels changed without stopping the supply and laminating section of the machine.

(5) A stripper-roller (Fig. 4) performs the operation of removing the temporary plastic backing from the magnetic track, completing the process. The transparent backing is rolled up on a take-up split reel for convenient disposal.

Two separate drive systems are employed. The main drive system pulls the film through the pre-coater and pressure roller assembly and feeds it into the humidity cabinet. The main drive also supplies power to the slitter knives. No sprockets are used anywhere in the machine. Rotational speed of the knives is controlled by a variable speed clutch, which is adjusted to supply laminating tape at the proper tension to the laminating assembly. The take-up drive system, on the other hand, pulls the film from the humidity cabinet, removes the plastic backing and winds the film on the take-up reel.

Capital Film Laboratories has been in operation with this process for over a year-and-a-half, the last six months employing the new Scotchtrack laminator. The comany feels the process offers numerous advantages to the 16mm film producer, some of which are:

(1) Improved sound quality which magnetic recording affords.

(2) Ability to record instantaneously without delays in printing and developing time.

(3) Simplification of riding the gain control. Optimum results may be obtained with less control by the engineer.

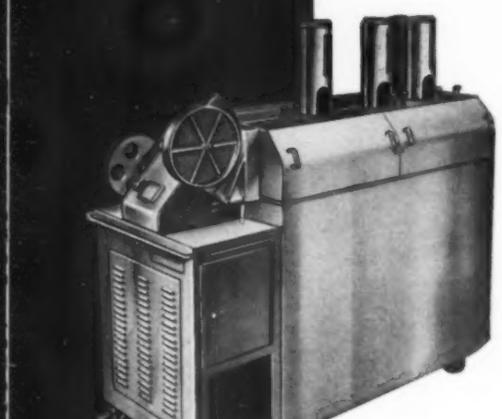
(4) Permits the use of two sound tracks on one film—a magnetic and a photographic track—allowing the magnetic track to be changed (re-recorded) when desired.

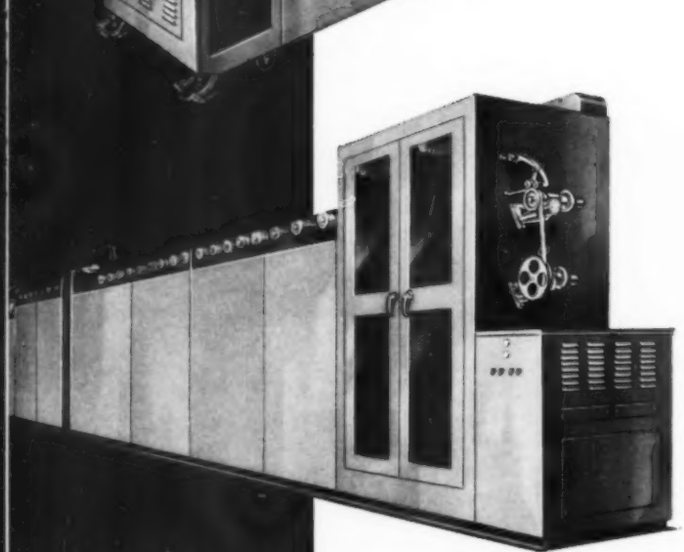
(5) Old films can be modernized with magnetically-recorded up-to-date tracks.

(6) One print can be released for many different languages simply by re-recording the magnetic track.

(7) A film producer can track his work prints to facilitate editing, can review the cut picture with simple narration, and quickly prepare a screening for a client or for agency personnel.

(8) As a tool for industrial research departments, films of new products can carry a separate narration for different company personnel levels, or the tracks can be changed to carry the results of progressively improving product research. **END**





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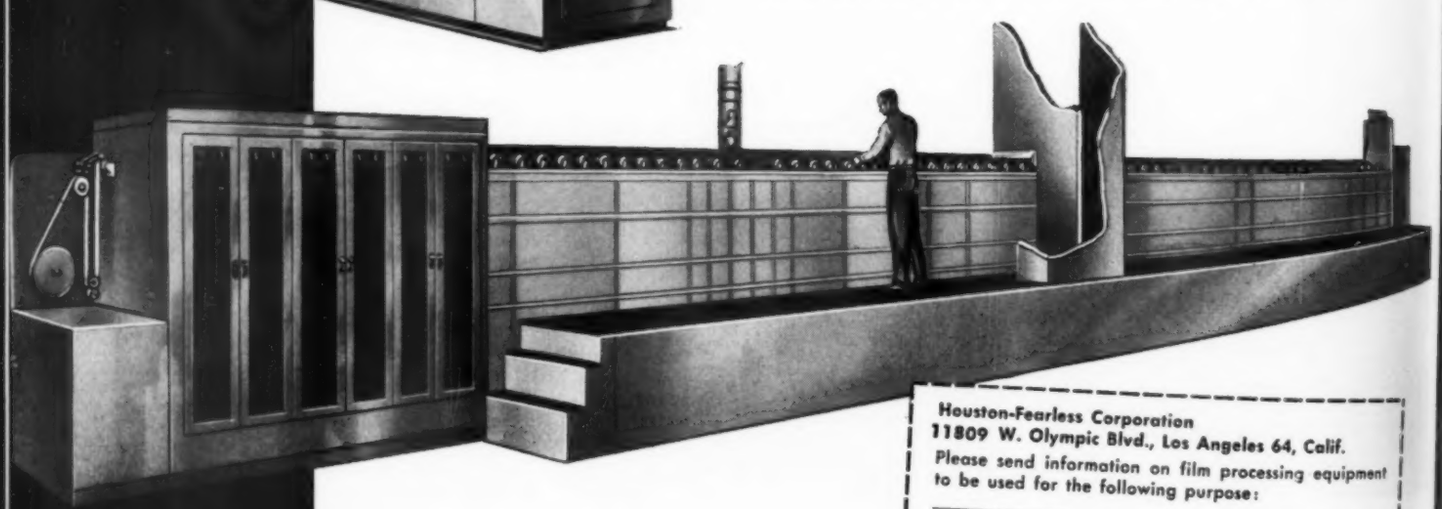

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By LEIGH ALLEN

FRONT VIEW of the new Auricon Pro-600 16mm synchronous sound-on-film camera, which features 600-foot film magazines and built-in soundproofing in the case structure.

As its name implies, the new Auricon Pro-600 camera's salient feature is its big, 600-foot film capacity, which offers 16½ minutes of continuous shooting. This newest of 16mm optical sound-on-film cameras from the Berndt-Bach drawing boards replaces the familiar Auricon-Pro camera, which had a film capacity of only 200 feet. Because of its greater film capacity, its successor is ideally suited to the production of television films.

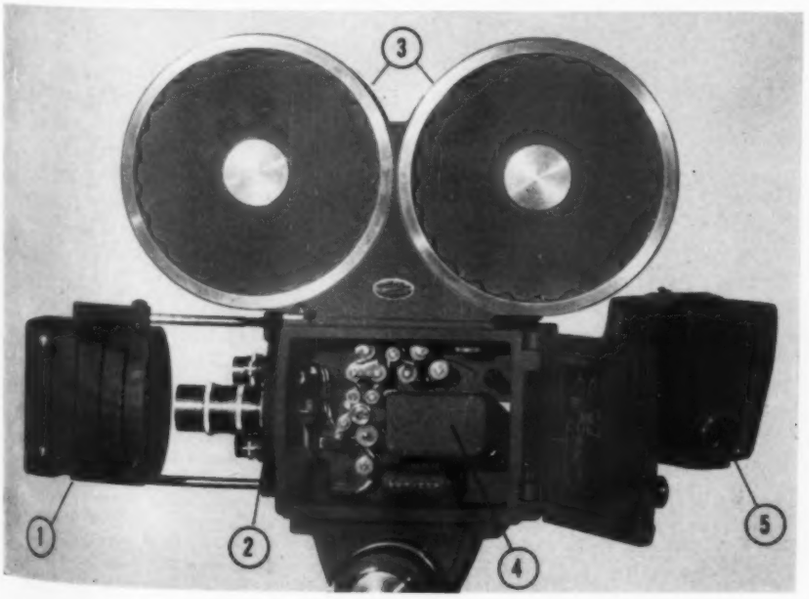
Larger film capacity, however, is not the only interesting new feature of this camera. It provides many built-in features that are important in professional film production, as well as a wide variety of accessories. These include a selection of three interchangeable camera doors. a 3-lens turret, lens turret "blimping" hood, critical ground-glass focusing, telefinder optical system for filming with telephoto lenses, and a choice of optical sound-track-on-film recording galvanometers and amplifiers.

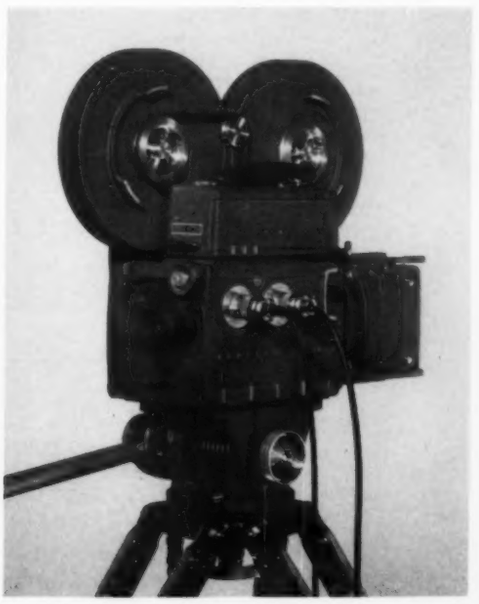
The camera is self-blimped to assure the ultimate in quiet operation for studio use. The synchronous motor drive provides an unwavering 24-frames per second speed for either single-system or double-system s.o.f. production. Exclusive Electromatic Take-up provides dependable smooth film flow to and from the magazines without the need for friction clutches or slip-belts. A unique method of applying a small amount of tension to the take-up spool of film, even when the camera is not in motion, keeps the film loop tight between the recording sprocket and the take-up magazine, insuring smooth film flow at all times.

Flexibility and accuracy is combined in the design of the interchangeable door feature. Camera doors may be interchanged without the need for tools. One provides for mounting the regular Auricon Auto-parallax Viewfinder Model EIF-20; another for use when a Zoom-type lens is employed; and a third which mounts the Standard Auricon Viewfinder.

(Continued on Page 178)

VIEW OF camera with door opened, and lens-turret blimping head (1) extended for access to lens focusing controls; (2) is 3-lens rotary turret; (3) 600-ft. film magazine, which provides 16½ minutes of continuous shooting; (4) recording galvanometer; and (5) Auricon Autoparallax Viewfinder. Note, also film threading diagram inside door.





REAR VIEW showing focusing tube, indicator light, push-botton control and other features. Camera replaces former Auricon Cine-Pro.

Editing An Unscripted Movie

Some movies need a script after they are shot. You can make a successful film out of unplanned footage shot at random by following these simple steps.

By HAROLD BENSON

HAVE YOU EVER written a script *after* you've shot the film?

It's not as crazy as it sounds. In fact, it's the best method of editing an unscripted movie. You can save yourself hours of cutting and splicing, and your film will suffer none of the hazards of scratching and buckling that the more orthodox trial and error editing can entail.

Of course, where you're lucky enough to have written a perfect shot-by-shot script and have been able to follow it in every detail when filming, editing will be a mere routine procedure. All you have to do is cut the shots to their best length and splice them according to your original paper work.

Personally, though, I've never yet been able to shoot exactly as my script prescribes, much as I'd like to. In family filming there's always an element of surprise to be reckoned with. Either Junior falls on his face at a crucial moment or the car starts acting awkward. The unexpected incidents are often as filmable as the scripted ones, so the best idea is to forget your plans and make the most of the new opportunities.

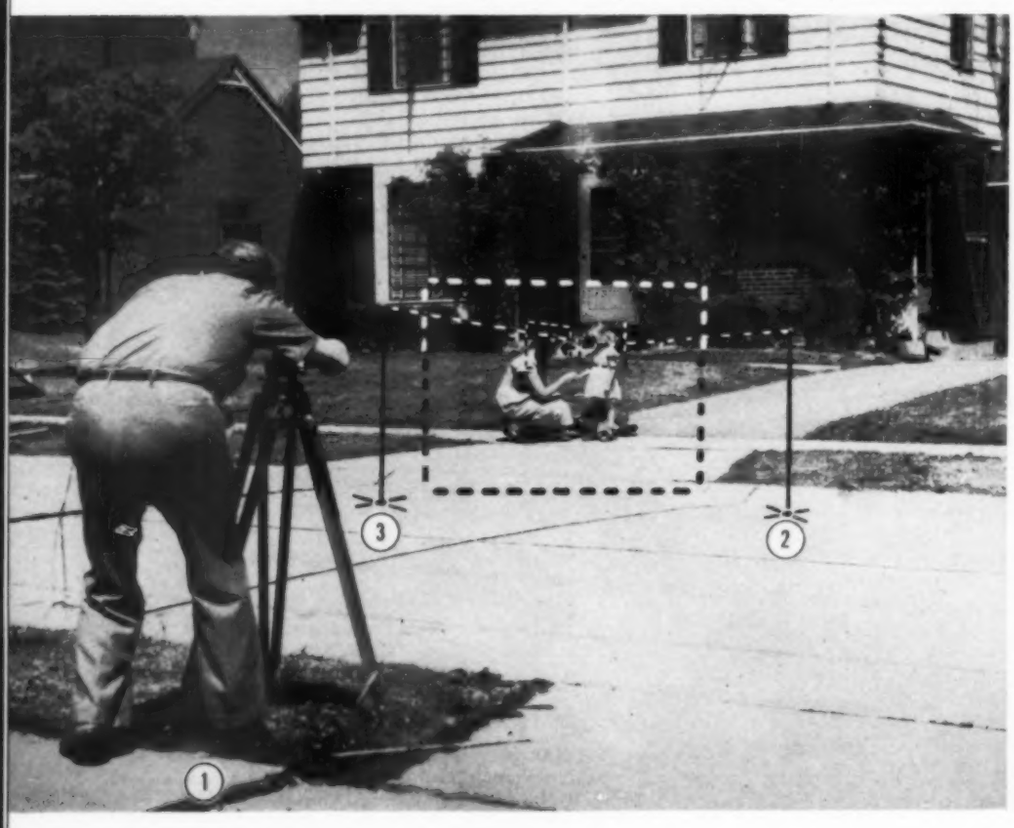
Then, of course, there are countless movie subjects that can't be tightly scripted because you just don't know what's going to happen. You may be taking the family to some hitherto unvisited spot to make movies. All you can do is work out the vaguest of plans for the general shape of the film and pray that nothing too diabolical interferes with your intentions.

These are the sort of movies which need a script *after* you've shot them if you're going to make a real success of editing the material. Once you've got past the initial glee—or despondency—of screening the reels on their return from the processors, run them through the viewer and take notes as you go.

Your notes should cover every shot as fully as possible—but that needn't involve as much labor as it suggests. For instance the notation, "8 secs., Jnr. gets out of car at park gates, pan L. to follow, ? U-E," tells everything you need to know about that particular shot. It gives the length of the shot, the approximate screen size (medium shot), the character featured, the location and the camera movement. "? U-E" implies that there might be slight under-exposure; notes of imperfections of any kind should always be made.

Perhaps you're wondering about that notation, "8 secs." For this you'll need a frame and footage rule. Ray Mercer, Hollywood, markets just the thing for this. You can use it to measure a strip of film in either "number of frames" or "number of seconds screen time." Or you can easily make your own. Take a length of 8mm or 16mm leader—depending on the film size you are working with—a strip a little shorter than the width of your cutting bench, and pin it along the near edge. Starting at the left end of the leader, mark off every sixteenth frame, and number the marks from 1 onwards. To find the screen time for a given length of film, all you have

(Continued on Page 167)



WHEN SHOOTING without a script, your chances of getting good continuity in the editing will be assured if you make additional shots of the most important action that will provide material for flexible editing. As for example, here, after the establishing shot is made at position (1), the filmer will move forward to position (2) for a closeup of the woman, then move over to position (3) for a closeup of the child.

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"From Research to Reality."

NUMEROUS effective tricks can be made by filming with the camera upside-down, as shown here. Camera is mounted on tripod with a simple strap-iron bracket; scenes filmed this way are then turned end-for-end when edited, with action appearing in reverse motion.

CAMERA TRICKS

Properly executed, they lend a professional touch to amateur films, give class to titles.

By CHARLES LORING

CAMERA TRICKS are what the term implies—trick photographic effects made with the camera, instead of being done optically after the film is shot. Camera tricks, as differentiated from special effects, are cinematic devices which are deliberately slanted to surprise, bewilder, or amuse the audience. When cleverly staged, they add zest to the motion picture story, especially so if it is a comedy, and they can do much to project the mood of a film based on fantasy.

Whereas a good special effect may create an illusion of reality without making the audience immediately aware of the deception—as in the soon-to-be-released Universal-International production, "This Island Earth"—the camera trick makes no attempt to disguise itself. Its effectiveness depends upon its originality, appropriateness, and technical smoothness. Au audience generally enjoys being tricked—but the trickery must be presented in a professional manner, or it will lose much of its impact. For example, in producing an effect, any "wires behind the scene" should not be allowed to show through and thus give away the trick.

Camera tricks require extensive detailed planning. Rather than throwing them indiscriminately into the script, they should be carefully slanted to gain a specific reaction from the audience. If a trick effect is important to the plot, the scenes which precede it should create a suitable build-up.

Before any trick effect is attempted, tests should be made and information assembled so that the mechanics of technique will be as nearly perfect as possible. Nothing is as distracting as a trick in a film that doesn't quite come off.

Because camera tricks are something that any imaginative cine amateur can do, some of the cinematic tricks that may be achieved with the average 8mm or 16mm camera will be discussed in the following paragraphs.

Upside-down filming, one of the oldest of all camera effects, has been employed both cleverly and clumsily ever since the beginning of movies. It is still an effective device when correctly applied.

The basic mechanics are simple: the camera is mounted upside-down on a tripod, using a simple bracket. The one shown in the accompanying photo consists simply of a length

(Continued on Page 172)

FILMING A cloud-effect background for a title. Spun glass is moved slowly over a lamp covered with dark blue cellophane as the exposure is made. The film is then wound back in the camera for the superimposure of the title text.

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SMALL TV STATION FILM UNIT

(Continued from Page 145)

the equipment is ample for any location shooting he may be called upon to perform. The two "broads" were made of galvanized sheet iron, formed and soldered, and fitted with porcelain sign-receptacles to take the photoflood lamps. The lamps are wired in parallel. Black iron gas pipe, welded together, made the lamp standards. Wheels from discarded hospital beds and mounted on the brazed iron pipe base, give the units portability. "Barn Doors" swing from each lamp; they're mounted on piano hinges sweated on with solder. Each unit will hold four No. 2 photoflood lamps, or four PAR 38 lamps, where the lights are used with the Colortran converter. Each lamp and standard cost about $13.00 for materials.

In tackling his film developing problems, Pillsbury's aim was to find a way to develop newsreel negative in short lengths in the shortest possible time. Purchase of one of the rapid film processing factory jobs was, from the standpoint of budget, out of the question. So Pillsbury built a simple developing reel and tank plus a drying rack—equipment such as many amateur movie makers built and used in the early days of the home movie hobby. The cost? Forty-five dollars for the entire outfit.

The vertical titler and animation rack is one of the most important pieces of equipment in the studio. Following the usual Pillsbury trend for simplicity, it is all wood, except for two 6-foot lengths of 1½-inch aluminum tubing, which form the rails on which the camera base slides. The latter, counterbalanced by sashweights, is designed to hold either the Auricon, Bolex or the 35mm still camera, which is used in making slides. There is a mask hinged to the copy board, which shows the area normally viewed on a TV receiver screen. This serves to show the area limitations for the composition of TV film titles and advertising slides; it also serves as a centering guide for positioning copy on the board prior to shooting.

With the motion picture camera, shooting is normally done in one of three positions indicated on a scale plate affixed at one side of the titler. An arrow or pointer fixed to the camera base indicates the proper position for the shooting distance desired.

Pillsbury follows the simple procedures many movie amateurs do in aligning his cameras with the title copy board: a plumb bob on a string extended from the lens center to the base board to determine exact center; and a flashlight beam sent through the film gate in back of the camera lens to show the area covered by the lens at a given distance. Zoom shots of titles, etc., are obtained by "lubricating" the aluminum rails and sliding the camera down toward the copy board as the exposure is being made. Two 500-watt photo lamps, one at either side of the titler, supply the necessary illumination.

Despite the success he has had with his homemade equipment and "pocket-size" workshop laboratory, Pillsbury advises other video station film unit men to farm out all film work, still and movie, unless the station can afford professional motion picture printing and developing equipment, plus additional employees for the department. "Numerous film laboratories around the country now offer fast 24-hour film processing service," he said, "which, coupled with air-mail special delivery transportation of films both ways, provide service almost as fast as one can turn it out. Also, most of the labs have electronically-controlled printers which automatically correct exposure difference and provide a fully-balanced picture and sound track so necessary for good TV transmission. This is particularly advantageous when working with a single-system sound camera."

It is amazing the scope of film production which Pillsbury's homemade laboratory, his limited camera equipment, and his unlimited ingenuity and resourcefulness create for station KGGM-TV. News stories and commercials for local sponsors make a steady demand on his time. Despite its modest size, the city of Albuquerque provides an almost constant source of good news material for the station's news telecasts.

"Every now and then," Pillsbury says, "a good news feature story develops at nearby Kirtland Air Base. I recently did a 300-foot story about a B-36 and its crew. The B-36 looks large outside, but you ought to see its jam-packed interior! To get a shot of the technicians handling the plane's instruments, I had to go outside the nose and lay on a platform, and make my shots through a small window. Tri-X film shot at a speed of 650 solved the lighting here. From six to eight No. 2 photofloods placed behind the instrument panels, bunks, or clamped to the ceiling braces, provided the necessary illumination for other interior scenes.

"On another occasion, I filmed the mass naturalization of some 650 persons inside a Federal courtroom. Here again Tri-X was used at 650 film speed, and the Auricon recorder set at 9 for sound. This footage was telecast in negative form properly converted electronically for a positive picture.

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"Shooting film commercials for KGGM-TV involves both studio shooting and location filming. The former are a lot easier to do, because everything is more or less set. On the locations, we have to improvise as we go along, and of course, there is always the problem of sufficient light. We often take camera, dolly and lights into a super market and film a shopper in action. Here, camera and lights must follow the shopper—no simple task for a 'one-man crew.'

"We film a lot of commercials in the sponsor's place of business—garages, grocery stores, bakeries, clothing stores, etc. In shooting static interiors, I often shoot at 8 fps, using either 16mm reversal or negative film.

"Our toughest s.o.f. recording job involved a singer who played his own accompaniment in the manner of Jimmy Durante. With the mike 6 feet forward and two feet above the singer, we were able to make a dolly shot running from 8 to 14 feet from subject. For this we used the Fred Parrish converted Auricon Cine-Voice camera, DuPont 931 film (ASA speed 80), and the sound level set at 14 on the Auricon amplifier.

"All our TV news film," Pillsbury continued, "is processed to negative only; the image is converted to positive electronically during the transmission."

(Continued on next page)

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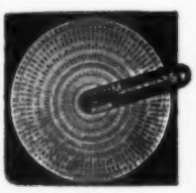

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Pillsbury's accomplishments prove two things: the value of an experienced and resourceful man to handle the film operations of smaller TV stations, and the need of those stations for facilities to enable them to offer local sponsors the same type of "station-originated" service that is offered by so many stations in larger cities.

Operations, such as described here, eventually develop into larger projects which require the commercial equipment necessary to render faster and more complete service—fast processors; camera cars fully equipped for on-the-spot news coverage; light, portable generators to power lighting on remote filming assignments, etc. But first there has to be the pioneering necessary to developing a market for film services. And that, Tom Pillsbury—"the guy in the middle"—has done admirably for KGGM-TV.

THE VIDEO-FILM CAMERA

(Continued from Page 141)

THE AUTHOR, Al Simon, is one of the pioneers of filmed television shows in Hollywood. He planned the original multiple camera filming system for the "I Love Lucy" show, later started both the "Joan Davis" and "Burns and Allen" shows on film.

He heads Al Simon Productions, which organization produces commercial films. He also is production supervisor for McCadden Corporation, Hollywood, currently producing the "Burns and Allen Show," "The Bob Cummings Show," and the "Life with Father" show for television—EDITOR.

it is being shot in the manner that live TV shows are presently "edited."

Still another technical advantage which this dual camera offers is the ability of the camera operator to keep a constant check on focus. There is no need to rack over and check focus after each take, because the focus quality as seen in the electronic finder corresponds exactly with that of the image reaching the film.

Use of remote monitors with the camera open up new possibilities for the cameraman as well as the director when dolly or boom shots are being photographed or in the filming of miniatures. Instead of riding the boom or dolly for critical observation of the camera coverage of the action, what the camera records may be seen more conveniently on the remote monitor, which may be located any place near the set.

Even the sponsors of TV commercials and their agency representatives stand to gain when this new camera is employed in shooting advertising spot announcements. Very often these men make it a point to be present when such films are being shot, in order to insure that their product or service is being photographed in the most advantageous way. The remote monitor will enable them to see the commercial exactly as it will appear on film, as it is being filmed. Any changes or corrections that appear necessary may then be made on the spot.

One of the more important engineering problems that was encountered in the development of the camera was the matter of insuring that the image recorded by both the film and the electronic camera units would reach each instrument at the required light level. For example, if a given scene is shot with illumination of 200 foot candles at a stop of f/4, the exposure will be the norm for *both* the film camera and the electronic camera without need for any compensating adjustments.

In the course of tests made with the camera by Phil Tannura, A.S.C., on one of the Jack Benny TV film shows, each of the three lenses on the camera turret were shifted into taking position during the filming of a sequence—each set at the same f/ stop.

"In comparing the results with footage shot earlier that day on the same show with conventional cameras," said Tannura, "the only difference noted was that the dual-camera negative required a printer-light adjustment of two points during printing. On the screen, there was no observable difference in quality. The test footage was shot with the 40mm, 50mm and 75mm lenses."

The advantages of this new, two-purpose camera appear almost endless as one continues to examine its potentials. Used solely as a motion picture camera, it can effect tremendous production economies by speeding up operation on sets, since each take is observable on the monitors by both the director and director of photography.

Used in a two-camera operation, such as the "Burns and Allen" TV film show, or a three-camera show, such as "I Love Lucy," the economies would be tremendous. It isn't hard to foresee the video-film camera eventually replacing the image orthicon television cameras presently in use in the major network studios because, with this camera, it will be possible to make first class film records of a show, replacing kinescopes. Where the

camera is employed on TV "spectaculars, there will be recorded simultaneously a first quality color motion picture negative, from which excellent prints can be made for subsequent telecasting.

With only slight modification, the camera may be employed to transmit a live television show in full color, at the same time recording the show on color film. Since at present there is no practical way for a color kinescope to be made, and there may not be in the foreseeable future, this camera easily solves the problem of obtaining a simultaneous record of color television shows.

When and if practical video tape recording is developed and employed in the production of television films, the video-film camera will be a natural for recording such programs for pickup and transmission to the tape recorder, at the same time providing a film record of the program, too.

Among those who aided in the development of the camera are the late Art Reeves, who designed the original reflex film camera; Robert Nichols, who carried on with the project following Reeves' passing; Dwight Warren, who labored on the optical problems; and Earl Spicer and Douglas Upton of RCA, who aided with the electronic phase of the project.

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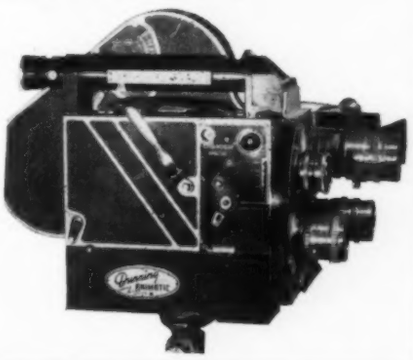

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"OSCAR" NOMINEES

(Continued from Page 139)

"Executive Suite," (M-G-M), George Folsey, A.S.C.

"On The Waterfront," (Columbia), Boris Kauffman, A.S.C.

"Rogue Cop," (M-G-M), John Seitz, A.S.C.

"Sabrina," (Paramount), Charles B. Lang, Jr., A.S.C.

COLOR

"The Egyptian," (Fox), Leon Shamroy, A.S.C.

"The Rear Window," (Paramount), Robert Burks, A.S.C.

"Seven Brides For Seven Brothers," (M-G-M), George Folsey, A.S.C.

"The Silver Chalice," (Warner Bros.), William V. Skall, A.S.C.

"Three Coins In The Fountain," (Fox), Milton Krasner, A.S.C.

For the first time in a number of years, one cinematographer has two pictures nominated, and thus has a double chance in the awards. He is George Folsey, A.S.C., one of Metro-Goldwyn-Mayer's top directors of photography, who photographed the black-and-white production, "Executive Suite," and the color production, "Seven Brides For Seven Brothers."

The ten productions named above are now being voted on by some 1700 active members of the Academy of Motion Picture Arts and Sciences, and this balloting will select the best achievement in cinematography in each class, which will be announced at the Academy's annual awards presentation ceremonies in Hollywood late this month.

The ten contending films were selected by a process of elimination balloting by the industry's directors of photography from a list of more than 50 films nominated by the men who filmed them, or by their contemporaries.

The Academy's rules provide that both foreign and domestic films shall be eligible for achievement awards consideration. Early in the year each director of photography in the motion picture industry is given the opportunity to submit for consideration the name of one black-and-white and one color production on which he has received single or joint screen credit as director of photography. In addition each may also submit the name of one eligible black-and-white and one eligible color *foreign* production which he deems worthy of Awards consideration. The productions thus submitted are then listed on a Preliminary ballot, which is sent to all directors of photography in the industry who vote for not more than ten productions in each classification in the order of their preference (i.e., ten black-and-white and ten color productions).

The twenty productions receiving the greatest number of votes from this preliminary balloting are then screened and voted upon to select the five best in each classification. These productions are then voted upon by the Academy membership to select the one production in each classification to be awarded the Academy's gold statuette or "Oscar"—which is presented to the respective director of photography. All voting is by secret ballot, and the winners are known only to the certified public accountant firm, which is entrusted with the final tabulation. The final vote results are kept secret until the "big night" when the presentations of "Oscars" takes place.

Although the names of several foreign productions were submitted in the beginning for consideration for cinematography, only one—"The Little Kidnappers" — succeeded in making the Preliminary Ballot. It was eliminated in the balloting to select the Nominees. The last time that a foreign production remained in the running to eventually capture an "Oscar" was in 1951 when "The Third Man," a British production photographed by Robert Krasker, won the Academy's achievement award for best black-and-white photography. In 1948, two Arthur Rank productions captured both the black-and-white and color achievement awards. These were "Great Expectations" (B&W) photographed by Guy Green, and "Black Narcissus" (Color) photographed by Jack Cardiff, A.S.C.

Of the nine directors of photography in the running this year, three are previous "Oscar" winners. Charles Lang, Jr., A.S.C., won his first Award in 1934 for the photography of "A Farewell To Arms." Leon Shamroy, A.S.C., won in 1943 with "The Black Swan" (color), in 1945 with "Wilson" (color), and again in 1946 with "Leave Her To Heaven" (color). William V. Skall, A.S.C., won an Award jointly with two other cinematographers for the Technicolor photography of "Joan of Arc."

The Academy's Awards Presentation ceremonies will take place at the Pantages Theatre in Hollywood the evening of March 30th. A full account of the winning films and the men who photographed them will appear in the April issue of *American Cinematographer*.

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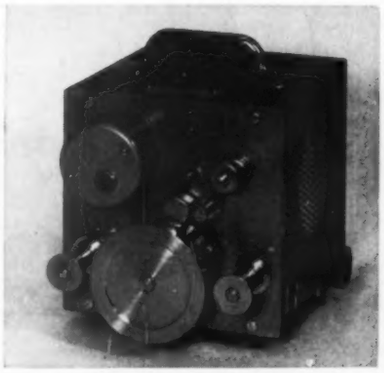

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EDITING

(Continued from Page 158)

to do is hold one end against the beginning of the leader and read off the figure nearest the other end, which will give you the screen time to the nearest second.

When you've gone through all your shots and have noted the details, put the film away. The notes are all you need until the final stages of cutting. Number your list of shots, decide on your opening and closing titles, and you're ready to begin.

A degree of ruthlessness in throwing out shots that aren't up to standard is essential. Poor exposure, bad focusing, action jumps, camera jerks, parallax faults and shots too short to be seen properly are the principal offenders, and all the serious cases must be removed. For the moment it's just a matter of deleting the shots from the list.

Next comes the most difficult operation—sorting the shots into their best order. You've had the creative element removed from your belated script, but to make up for it you've got to juggle with your notes. You've seen every shot, so it's not as difficult as it sounds. Besides, most shots dictate their own order,

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especially where straightforward narrative is concerned.

All the same, it can be tricky deciding how to shuffle a series of scenic shots, which feature members of the family strolling from one place to another. Providing they walk in and out of each shot in the same screen direction, you've got complete freedom to put the shots in any order you like. There can't be any strict rules for this kind of situation, for so much depends on individual circumstances.

Incidentally, the question of screen direction is a most important one in cutting. When making your notes, make sure you put down the direction in which any character enters or leaves a shot. It doesn't matter in the slightest what the actual direction was when you were shooting the scene; all that counts is the *screen* direction.

Look at it this way: Supposing you make a shot of baby crawling along on all fours. Instead of panning to follow, you let him crawl out of the picture, let's say to the left. A few minutes later you decide to make another shot of baby crawling a little further on. This time you take the shot from the opposite angle, though baby is still heading in the same direction. But if you let him crawl in and out of the frame, he will appear to enter from the left and exit right.

If you splice this shot direct onto the first, it'll look as if baby turns round and goes back the way he came, even though he actually continues as before. So note your screen directions and follow the maxim, "Exit left, enter right."

That's a rule to which there are no exceptions, but for the most part shot order is a question of trial and error. Splicing and re-splicing film doesn't do it much good, but re-arranging a list of numbers is quick and safe. There are a few guiding principles, of course. The problem can be summarized as a question of threads and links.

The ideal film is composed of a series of sequences, each concentrating on a single thread. Each sequence flows into the next by means of a link, which can also take innumerable different forms.

Threads range from a complex narrative to a group of shots on one subject introduced by a suitable title. For example, "The beach has many attractions" could tie up a few assorted shots which won't fit in anywhere else, though this is the coward's way out, and should be reserved for moments of crisis.

Links can be even more difficult, and should really be thought out during the filming stage or before. Sometimes the material can completely defy the editor who tries to dovetail two totally different sequences, and his only recourse is to a title. Often, though, surprising chances are overlooked. Pictorial links can be of an astonishing variety. Similar subject matter, similar compositions, similar movements, these are the things to look for.

You could cut from a close-up of Junior's feet paddling in the sea to a closeup of his father soaking his feet after an afternoon hike, though you'd be lucky to find two shots which corresponded so well unless you'd actually taken them for the purpose. On the other hand, a cut from the children playing with a toy boat, train or car to a shot of a real boat, train or car might easily be possible in a few spools of "odds and ends" footage.

So much, then, for the order of the shots. After you've satisfied yourself that your list of numbers can't be improved, the question of timing arises. If you've any mammoth shots running over 25 seconds, you'll need to intercut them with other shots or whittle them down. Be careful, too, of the comparative lengths of closeups, medium shots and long shots. A very approximate guide is that average closeups should last about 5 seconds, medium shots about 8 seconds, and long shots about 12 seconds.

Use short shots if you want to build up a little excitement or tension. They're best for comedy, too. But for calm, placid material, concentrate on longer shots. The ideal is a combination of the two, inter-related as the mood of the film changes.

Rather surprisingly, you'll find you can judge tempo on your shot list quite satisfactorily after a little practice. When you've noted the length you think suitable for each shot against its number in the order list, you're ready to cut the film according to your schedule.

Frankly, you'll be lucky if your first assembly is perfect. You'll almost certainly find a few things that need tightening up or re-arranging. But you will have done all the donkey-work much quicker than usual—and you won't have harmed a frame of film in the process.

SPLICING WITH TAPE

(Continued from Page 152)

staple or stitch splices. Tape splices are also useful for negative repairing, whether the damage be a broken perforation or a broken film. And in the 16mm field the utility of tape splicing may be even greater than for 35mm applications.

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PHOTOGRAPHY OF "EAST OF EDEN"

(Continued from Page 149)

cases were stocked with the type of merchandise in use during that era.

All this took very careful research. Research department heads spent several weeks in Salinas gathering old photographs and information from the citizenry about the town as it was prior to our entry into World War I. The information gave authenticity and vermisimilitude to the recreation of 1917 Salinas at the studio as well as to the staging and photographing of such events as thet World War I parade.

These locales represented the key sets and scenes of the picture on which director of photography McCord focused his attention in the early stages of planning the photography. The venerable facades of the World War I era, the simple life of those days, the sedate decor of interiors of the day—all these factors had a bearing on the photographic approach that was to be given the production.

The picture is not long on the screen before the striking artistry of McCord's cinematography comes sharply to one's attention. It is reminiscent of the imaginative camera work that marked "Johnny Belinda," which won McCord

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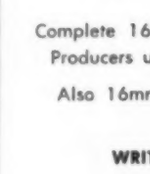

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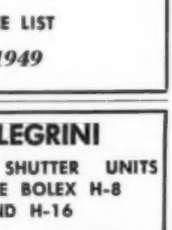

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an Academy Award nomination in 1949.

Perhaps the most startling innovation is the way he tilted or angled the CinemaScope camera in order to achieve a more compelling composition when shooting the dramatic scene where the father is having a heart-to-heart talk with his troublesome son, Cal. The two are seated at the family dining room table—the father at the far end, and son at the side, in left foreground. To bring the two dramatically into prominence in a tight, wide-screen closeup, McCord moved his camera around to place the table diagonally in the CinemaScope frame, then tilted the camera to one side so that the wide rectaugular area of the CinemaScope frame would tightly fit the composition. In this way, the father was given visual dominance in the scene that could not have been accomplished in any other way. It is something that never before had been tried with the CinemaScope camera, undoubtedly because of the ultra wide-screen format. McCord's imaginative treatment here sets a pattern sure to be followed by others.

He used the tilted camera technique in still another scene, too. Later in the picture, there is a shot of Cal swinging in a garden. Instead of shooting the scene head on, with the boy swinging alternately toward and away from the camera, McCord set up his camera a little to one side, so that the wide CinemaScope frame encompassed the arc of the swing, keeping the boy in fairly close focus. As the boy swung forward, the camera, mounted on a free-head, was angled and tilted to keep the swing action within the frame, giving an unusual photographic effect to the scene.

This is the type of imaginative photography which director Kazan invited of McCord when he gave him free rein to develop bold new treatment in the filming of "East of Eden." Kazan would often call McCord to one side and tell him, "If you see something you can do to improve this scene, I want you to do it. Figure it out, then call me when you're ready."

Although it was Kazan who in the beginning sought the bold, the realistic and the unconventional treatment in the photography of "East of Eden," it was Ted McCord who more than once, having caught the spirit of the thing from Kazan, steadfastly held to the credo first established by him. "You've got to be bold, and brave, too, to work with Kazan," said McCord, "for he's that kind of a man himself." So when McCord chided him at one time for wanting to shoot scenes "both ways for protection." Kazan was persuaded to follow the bold and unconventional camera treatments which the daily rushes had already shown to be highly successful.

"East of Eden" is punctuated with many unusually dramatic photographic treatments about which limited space precludes describing here. But there is another instance where McCord's imagination paid off that resulted in a simple effect, obtained in a method that is almost as old as cinematography itself.

Kazan wanted a "spooky" effect in the photography where the camera was to capture action of the boy Cal in his bedroom. McCord suggested shooting the scene through the bedroom window and through the transparent netting that was the window curtain—with an off-stage fan gently blowing the curtain to and fro as if it were moved by a gentle breeze. The pictorial effect is most unusual and lends just the right atmosphere to a scene that begins a new dramatic phase of the picture.

In the very beginning—before actual shooting of the picture began—McCord made a number of pre-production tests to determine the most appropriate colors for the key sets, colors that would be in keeping with the precise mood director Kazan felt was so necessary to the motivation of the story theme. For mood was a highly important factor in this picture, a factor that was to underscore the unusual personality of Cal, the strong feelings of the father, and the moods of Cal's brother Aron and his sweethetart Abra. No less important was the strong pictorial mood that would give the brothel interiors the evil and foreboding aspect so necessary to background the action that takes place there.

Here a unique method was followed. A number of flats were painted or decorated with wallpaper. Then they were photographed in pairs on the test stage by McCord. The flats were paired in contrasts and were photographed under different lighting schemes. The test footage was viewed in the projection room and it was here that the art directors and Kazan and McCord mutually decided on the most appropriate color patterns and lighting for the various key sets. Here again, the trend was away from the conventional—the "formula" procedures. There was to be no set ratios for the lighting. Color, and mood established through light and shadow, keyed the photographic treatment throughout the picture, even to the most insignificant shot—if it can be said that there was such a thing in "East of Eden."

And while we're on the subject of interiors, special mention should be made of one scene in particular, the hall in Kate's gambling house, because a great deal of tense action takes place there; but more important—because it is lit with a single lamp—a 10-K. This was placed at the far end of the hall facing toward the camera. As the play

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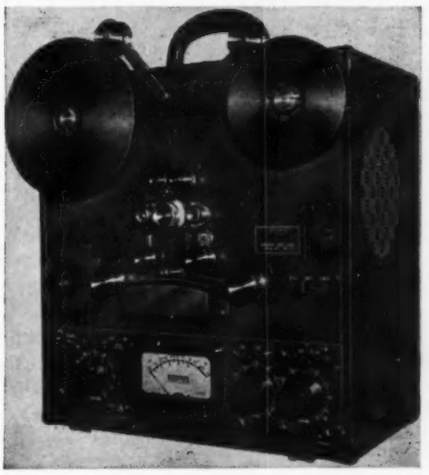

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ers move forward toward thte camera (in search of the door leading to the mother's "office") they appear in silhouette. Still, there was a measure of modelling achieved through some of the light from the 10-K lamp, which was reflected by the highly varnished walls and floor of the hall. It was an ingenious treatment of a seemingly impossible lighting situation.

Holding to his credo for genuine realism in the photography of "East of Eden," director Kazan early in the planning of the picture indicated he wanted no process shots of any kind. In the shots of Cal riding atop a freight car of a moving train, the CinemaScope camera was mounted on top of the car and the shots made as the train moved through a stretch of countryside. It was while making these shots that McCord and his crew, along with the costly camera, were almost swept off the freight car as it passed under a low bridge. The crew had been too engrossed in attending the camera to notice the train's rapid approach toward the bridge. Fortunately, the camera cleared the bridge by a scant three inches, and all in the crew escaped without a scratch.

An interesting problem was encountered when the company was shooting exteriors where action takes place in a

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field covered with wild mustard in bloom — a beautiful scene pictorially, which enhanced the mood for the romantic action; here Abra first reveals her interest in Cal. Despite the great caution taken to prevent trampling of the mustard, the studio greens man was kept busy replacing the trampled mustard with fresh, upright plants dug up in an adjacent field. As with so many wild plants, mustard will not take to transplanting, and as a result the transplants wilted within minutes. The scenes were finally shot by delaying the transplanting until all rehearsals had been completed, then, when the scene was ready to take, the trampled plants were replaced, the action started, and the camera ordered to "roll."

One of the most extensive phases of the photography involved the scenes of Cal and Abra in a gondola atop a Ferris wheel in an amusement park. For this sequence, Warner Brothers erected a Ferris wheel on the studio lot, where shooting could proceed without the interference that normally would be encountered were the action shot in an amusement park. Here is another example of Kazan disdaining the process shot in favor of "the real thing." Another producer, perhaps, would have played the action on the sound stage against a process background.

To elevate the camera, the giant camera crane Disney employed in filming "20,000 Leagues Under The Sea" was used. To provide similar mobility for the sound recording equipment and mike boom, a telescoping parallel on a city power company truck was brought in and the sound equipment mounted on its elevator platform. as shown in the photo on page 148. To elevate the necessary lighting units above the top of the Ferris wheel, a giant construction crane was brought onto the lot. From the end of the crane a sturdy platform was suspended and the lamps mounted on it; the power cables were strung up overhead to the supporting cable and thence down the crane to the supply source on the ground.

Mention should be made here of the judicious way high and low camera angles are used throughout the picture; they are not overworked, with the result that when they are used. they give unusual dramatic impact to the picture.

Perhaps the most emphatic thing photographically one feels in observing "East of Eden" on the screen, is that it is an outstanding example of the camera used with proper emphasis. At no time do the photographic mechanics nor the "new look" that marks CinemaScope intrude; rather they add vividness to the interpretation of the script and point up the subtle shadings that are so important in this strong dramatic film of moods and unusual personalities. **END**

CAMERA TRICKS

(Continued from Page 160)

of sturdy strap iron, which has a hole drilled at either end to take the tripod and camera screws.

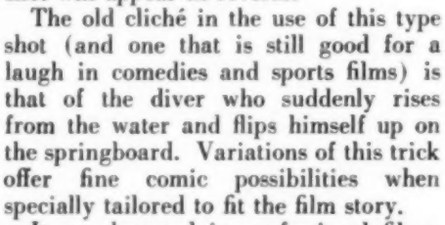
Using the camera thus, the scene is shot normally. After the film is processed and ready for editing, the upside-down scene is cut out, turned right side up, and spliced in its proper place in the film continuity. When the film is projected, the action in the upside-down shot will appear in reverse.

The old cliché in the use of this type shot (and one that is still good for a laugh in comedies and sports films) is that of the diver who suddenly rises from the water and flips himself up on the springboard. Variations of this trick offer fine comic possibilities when specially tailored to fit the film story.

It can be used in professional films, such as TV commercials, too. Let us consider a spot TV announcement for a breakfast food. The subject is first filmed eating heartily from a dish stacked high with the breakfast food. When finished, subject goes out into the garden; then, with a mighty leap he bounds to the top of the garden wall—to demonstrate the vigor the breakfast food gave him, of course! To produce the shot of the amazing jump to the top of the garden wall, the subject is filmed jumping *down* from the wall—with the camera mounted upside down. The scene, of course, is turned end for end in the editing.

You can employ this same technique to photograph action that would otherwise be dangerous or difficult to stage—such as the famous vaudeville knife-throwing trick, or shooting an arrow and making it appear to hit the center of the bull's eye. In the latter, the camera is mounted upside-down, and the arrow plunged into the bull's eye of the target. A sturdy thread is attached to the arrow, and as the camera is started, it is pulled by someone off stage—causing the arrow to fly out of the target. The scene turned end for end, and properly trimmed to

Spectra Meter Now Measures Color Temperature



SPECTRA Brightness Spot Meter with iris and external meter calbrated to read directly in color temperature.

A NEW IMPROVED Spectra Brighness Spot Meter has been announced by Photo Research Corpn., 127 W. Alameda Ave., Burbank, Calif. The meter is employed in the motion picture industry to evaluate minute areas of lighting on motion picture and television sets, theatre screens, etc. The new model will also evaluate color temperature for color photography.

Developed from Photo Research Corp.'s long experience in the design, manufacture and application of exposure meters, densitometers, color temperature meters, filters and other precision photographic and photometric instruments, the Spectra Brightness meter is the first instrument of its kind which completely eliminates the human factor in evaluating light.

The instrument measures the brightness of a small spot from a remote location. This brightness is indicated directly on the instrument dial in footlamberts. Any operator will secure the same reading of a given light condition, since the unit is completely independent of the sensitivity of the user's eye, and requires no time-consuming manual matching of brightness.

All this is accomplished through the use of a vacuum phototube, electrometer tube amplifier and microammeter. The telescopic sight of the instrument forms a magnified image of an area approximately five times the diameter of the area measured. A circle in the center of the reticule indicates the exact area measured.

No external source of power is required to operate the instrument other than the small battery pack supplied with it.

An auxiliary attachment is used to permit the Spectra's use in evaluating color temperature.

In addition to its many applications in the motion picture and television industries, the Spectra's use has recently been extended to a wide number of industries for measuring illumination brightness, brightness of reflected light and the effectiveness of lighting on instrument panels of aircraft, according to Karl Freund, president of Photo Research Corp.

eliminate the static frames before the arrow action begins, appears on the screen with the arrow entering the scene and plunging into the bull's eye. The knife-throwing trick is done the same way, with threads tied to the knives and the knives pulled out of the wall one by one by a person out of camera range. Here careful camera placement is vital to eliminate picking up the threads in the scene.

The upside-down technique also can be used to make trick effects in movie titles, such as those where the words of the title appear to be washed up on shore by a wave, or titles which appear to materialize from a pile of scrambled child's blocks.

Double-exposure — Double-exposing two or more scenes on the same length of film is a trick that has been widely used in professional film making, and it holds a number of interesting applications for the amateur, as well. In many of the films based on fantasy, dream sequences are often used to convey the hidden thoughts or emotions of a specific character. By double-exposing shots of the character over exaggerated scenes or situations, the idea of unreality can be brought home quite forcibly.

The mechanics of producing double-exposed shots are basically simple. The two separate scenes are carefully planned in advance so that the compositions of each will complement each other, rather than clash. The first scene is exposed, then the film is wound back in the camera to the start of the scene. The second scene is then exposed for the same period of time or number of frames. Here, careful exposure control must be maintained so that the two scenes will balance in density and quality.

To achieve the best effect, the principal scene of the two should be lighted so that it contains a substantial dark area over which the second scene will be exposed. The subordinate scene should be played against a completely black background, thus eliminating any disturbing clash of backgrounds of the two exposures. A typical scene of this kind would be that of a person dreaming, with the second exposure showing what he is dreaming. The person should be placed low in the picture frame, with the lighting subdued and concentrated on him. The upper part of the frame should be left dark. Over this area, then, the superimposed image is photographed. As a guide, the area limits should be marked in the finder, where feasible.

Where a ghost image effect is desired, the subordinate scene is under-exposed about one-half stop, and thus will appear somewhat transparent, with the principal scene showing through. This technique can be used, not only to produce a ghost illusion, but to show a subject talking to his own conscience, etc.

Double-exposing color film is relatively difficult, since it involves the problem of color mixing and because additional exposure affects the colors in the scene first exposed. But where double-exposure is to be employed in making color titles, bold, white letters given sufficient contract to "burn through" can be superimposed quite successfully over scenes photographed in color.

Because of the more precise control the method offers, double-printing is often employed, where double-exposure proves unsatisfactory. This is a laboratory procedure in which the two scenes are first exposed on separate lengths of film, and are then combined through optical printing by a commercial film laboratory. The great advantage in this method is that a greater degree of exposure control can be exercised in balancing the scenes in the laboratory to produce more uniform quality and density in the final print.

Next month, we shall discuss additional camera tricks which the cine cameraist can make, thus giving his films a measure of professional polish. **END**

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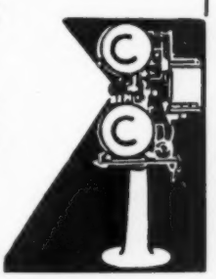

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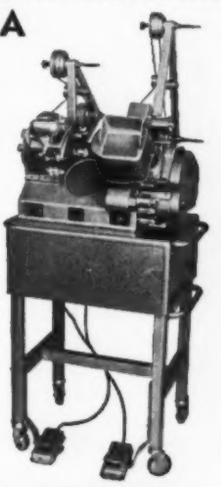

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COLOR-TELEVISION FILM SHOOTING PRACTICES

(Continued from Page 142)

chrome receivers. The following staging recommendations were formulated with these considerations in mind:

1. Flesh tones of performer's shoulders, arms and back should match facial make-up. Normal variations from performer to performer are permissible.

2. Costumes and backgrounds of the same hue or luminance as flesh tones will result in loss of perspective, particularly on monochrome receivers, and the performers will not stand out from the rest of the picture.

3. In shooting successive scenes at different angles and, more particularly, at different times, great care must be taken to see that the colors of costumes, background, and make-up are identical to those photographed in earlier takes. The chances of having glaring inconsistencies between takes is much greater when color is used.

4. Backgrounds low in color saturaiton, matte-surfaced and of medium luminance will help avoid reflection of colored light onto other parts of the scene being photographed with consequent color contamination. In addition, it provides better contrast between foreground and background objects as seen on both color and monochrome receivers.

5. Background-to-subject reflectance ratios lower than 1 to 1½ will destroy all illusion of depth, particularly for monochrome viewers.

6. Close-ups should be emphasized and tightened about 15% as compared to practices for monochrome television in order to obtain equivalent fine detail. Even in shooting film for black-and-white television some producers have failed to keep their shots tight enough. In color the need for following this practice is even more important because of the somewhat lower resolution capabilities of the color television system.

7. Long shots, busy background and small detail, suffer even more in the color television system than they do in black-and-white. It is recommended that they be used sparingly and primarily to establish locales for special effects.

As is well known, the hue saturation and luminance (brightness) of any surface depend not only upon the reflectance characteristics of the surface itself, but also upon the nature of the light striking the surface. Whereas in monochrome photography the color of the light has only secondary effects on gray-tone rendition, in color photography variations in the color of the illumination can seriously affect the fidelity of color reproduction.

Effective lighting is a valuable aid in preserving an illusion of three-dimensionality on a two-dimensional viewing surface. Where the final result is viewed only in color, color contrasts may be relied upon to achieve the desired result. However, in television, where monochrome viewing of color film is also involved, consideration must also be given to achieving perspective with luminance (brightness) contrasts alone. Finally, since both color-film and color-television systems can accommodate only a limited contrast range, it is important that measurable factors (light levels, set and costume reflectance, film characteristics, etc.) be accurately determined and precisely maintained within the proper operating range in order to insure satisfactory and consistent results. Such latitude as is available should be relied upon to offset expected errors and variations in shooting and processing rather than to permit careless work.

1. Color temperature of all lighting sources should be checked and maintained at the specified value — usually 3200 K for color film intended for indoor shooting. Light sources should have a smooth spectral distribution. (e.g., incandescent lamps and color corrected arcs).

2. Light sources of different types may be intermixed provided they have similar energy distribution spectrums and are color corrected to within 100 K of the standard value. Variations beyond the 100 K limit result in noticeable color shifts as the subject is viewed from different angles or moves from under one light source to another. Consequently, little use can be made of dimmers to control the brightness of incandescent lamps.

3. Light sources for background illumination need not be balanced so precisely provided no objects whose colors are familiar to the viewers are included in the background.

4. Ideally, key-light to fill-light ratios in the vicinity of 1½ to 1 and absolute key-light levels of at least 600 ft-c should be maintained. Larger ratios may be used sparingly to obtain desired effects, and are, of course, encountered in outdoor shooting. They are likely to result in very contrasty pictures when the film is viewed on a color-television system. Lower absolute light levels may produce too shallow a depth of focus.

5. Uniformity of lighting in the playing area is essential. Small variations in illumination can result in exaggerated deviations in the fidelity of color reproduction.

6. Flat lighting, although easy to use, results in lack of modeling, and destroys the sense of space between objects, particularly when viewed over monochrome television system.

7. High key-lighting results in the most consistently pure color reproduction. Low key-lighting is far less predictable in color and tends to give a muddy reproduction.

8. Subject contrast as determined by a spot-brightness meter should not exceed 20 to 1. This value is in keeping with the capabilities of the present-day color-television system.

9. Exact reproducibility of lighting, as to lighting ratios, color temperatures and direction of light, is essential to reduce a minimum shot-to-shot and scene-

Animatic Timer For Time-lapse Photography

Animatic power supply and interval meter which actuates camera-pulldown attachment.

A NEW DEPARTURE in intervalometers for time-lapse cinematography employs electronics to trigger the camera release instead of a mechanical device. Marketed by Anson Research Co., North Hollywood, Calif., the Dunning Animatic Interval Meter will will operate cine cameras for single exposures at intervals ranging from one to sixty seconds.

As with many devices of this kind, there are no wheels, cogs or clockwork involved. An electric charge is built up within the Meter and released at the interval desired. This is directed to the camera pull-down mechanism, which is the only mechanical device involved.

The Dunning Animatic Interval Meter may be had to operate on dry batteries, A.C. power, or photoflash.

Single frame pull-down attachments are presently available for use with the timer in time-lapse photography with the Eastman Cine Special and the Bolex H16 cameras.

to scene variations. Accurate and reliable incident-light and spot-brightness meters are recommended, the former for setting lighting levels and the latter to control contrast. Detailed lighting plans of the entire shoooting area are also recommended.

For a given lens aperture, and assuming conventional motion-picture cameras are used, presently available color film requires approximately three times the light level that is necessary for obtaining an optimum output signal from a color-television camera. The effective speed of a color-film camera system may be said to be only one-third that of a color-television camera system and about one-tenth that of a black-and-white television camera. Identical lenses may be used for television and for 35mm film cameras. Thus, in order to obtain the same depth of focus in color motion pictures as in color-television pictures, it would be necessary to employ three times the light level used in color television. Since this would entail lighting levels in the vicinity of 1000 ft-c, it is not generally feasible to follow this procedure. Instead, lighting levels approximately twice those used in color-television work are used and the remaining difference made up by employing larger lens apertures. Consequently, the depth of focus of color motion pictures produced indoors is generally less than that obtainable from a color-television camera.

In addition, the performance of a motion-picture camera cannot be as readily checked as can that of a television camera. The television camera may be trained on a test chart and its performance determined in a few minutes by measurement and observation. The motion-picture camera, on the other hand, can only be checked by exposing test film, waiting for it to be processed and usually after a day or more the results are obtained, at which time the process may have to be repeated. This is unfortunate since, despite their relative simplicity, motion-picture cameras often develop faults that adversely affect the end result.

The camera checks outlined below are undoubtedly standard operating procedure for the professional cameraman who has worked with color film. They are, however, reiterated for the benefit of the reader who may not realize how small a latitude for error is permitted by color film. The need for carefully checking the performance of a camera and its associated lens under actual operating conditions cannot be overemphasized.

1. Complete focusing tests should be run on all cameras and with all lenses. Since, at best, the depth of focus is limited, the distance calibration of all lenses in all cameras should be accurately known.

2. The accuracy of the range finder or visual focusing attachment, if used, should also be determined.

3. The accuracy of the viewfinder and the existence of any parallax errors should also be determined, particularly since many close-ups are likely to be involved.

4. The flatness of the field of all lenses should be checked as a function of aperture. No reliance should be placed upon the lens simply because it bears a prominent name.

5. The depth of focus of the equipment should be accurately ascertained. Where a follow-focus arrangement is not available, it may be necessary to raise the lighting level and reduce the aperture until an adequate depth of focus is obtained to cover the action.

6. Any detectable jump or weave in cameras should be eliminated. The skill and precision with which a particular camera is built and subsequently maintained largely determines the perfection of its performance.

Where program material from color motion-picture film is intended to be comparable in quality to that obtainable from a color-television camera, 35mm film should be used. For broadcasting stations not equipped to handle 35mm film, reduction prints from 35mm originals should be provided. This recommendation is made because, although it is possible to make reasonably satisfactory prints from 16mm originals, in practice they are few and far between. Whereas Type 5268 Kodachrome Commercial Film is capable of producing a 16mm original that televises well, duplicates made from such originals are not of equal quality.

1. Eastman Type 5248 Color Negative Film is capable of producing 35mm originals from which satisfactory color prints can be obtained.

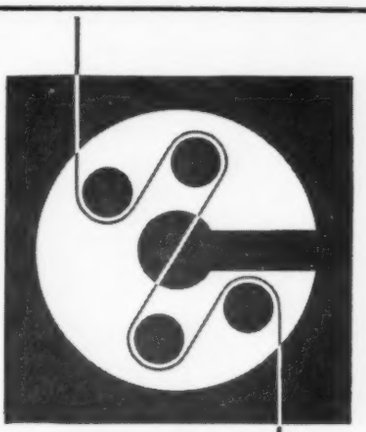
2. Eastman Type 5382 Color Print Film is suitable for producing satisfactory 35mm color release prints.

3. Eastman Type 7382 Color Print Film has been successfully used for the production of 16mm reduction prints in color.

4. Exposure tests of the particular batch of film to be used in a given production should be made under actual operating conditions. This should include the lighting, the camera, the lenses and the processing laboratory that will handle the final film.

5. In critical work each job should be treated as if it were the first, since changes can occur in the film because of improper storage conditions. Cameras can develop troubles and lenses can become damaged.

6. A slate containing, in addition to the usual information, a standard gray



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scale and color patches should be a part of every test and production shot. These slates should be carried through to the finished prints and the gray-scale steps should be large enough to permit the making of densitometer measurements.

7. The processing laboratories should be required to tag every piece of film with their own brand of sensitometer strips and these test strips should remain on the film when it is delivered. Obviously a sufficient length of unexposed film must be provided to allow the laboratories to meet this requirement.

8. Although the standards of the several acceptable processing laboratories differ from each other, continuous checks should be made to ascertain that any given laboratory is producing consistent results. In general, because of the nonexistence of industry standards, direct correlation cannot be made between the data obtained from the measuring methods employed by the various laboratories.

9. A contrast range of 20 to 1 should be used as a target for the final print. This goal is recommended despite the natural tendency, resulting from direct viewing, to produce prints that, from a television standpoint, have excessive contrast ranges.

10. The density of the highlights on finished prints should be as low as possible, consistent with retaining significant highlight detail. Glint lights and spectral reflection from jewelry, musical instruments and other highly polished objects should not be considered as "significant" highlights in determining highlight density.

11. Jump and weave introduced by poor printing machines should be guarded against by critically sampling all release prints delivered by the processing laboratory.

12. Experience indicates that considerable care must be exercised in color-correcting the print released for television transmission. Although some compensation for color inaccuracies may be obtained in the television system, it must be realized that it is not feasible to make scene-to-scene adjustments during film transmission.

13. Satisfactory black-and-white prints can be obtained from color film. Until a substantial number of television stations are equipped to transmit color film, it may be desirable to utilize black-and-

(Continued on Page 178)

Future Television Film Producers?

HAVING borrowed the equipment used by their dad, Bill Benesch, director of film photography for WKRC-TV, Cincinnati, Ohio, sons Jamie (at sound controls), Mike (behind the camera), and Bill, Jr., making like a director, play at shooting a television film. The camera's an Auricon Cine-Voice single-system 16mm sound camera which Bill, Sr. regularly uses in shooting TV films for WKRC-TV.

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(Continued on Next Page)

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(Continued from Preceding Page)

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SHOOTING COLOR TV FILM

(Continued from Page 176)

white prints for television transmission, even though the program has been shot on color film. Experience to date indicates that satisfactory black-and-white prints may be obtained from currently available 35mm monopack color negatives. A few producers have demonstrated that, with unusual care, acceptable black-and-white prints can be produced from 16mm Kodachrome, although it seems doubtful that this method can be generally recommended.

The soundtrack that accompanies a color motion picture is just as important as the picture portion of the print. Trite as this observation may seem, preoccupation with the picture photography has sometimes been detrimental to the sound recording operation. Since, in television broadcasting, a motion-picture presentation often follows or precedes a live production, the audience can make direct comparison of live and recorded sound. Whether this comparison is made consciously or not, the results are not likely to be favorable to film unless the track is of the highest quality. Although this direct comparison is commonplace in television, it is a test which few theater-type films have to face. The following practices, though known to technicians of the major Hollywood producers, seem to be frequently ignored by smaller producers.

1. Sound recording tests, accompanied with sensitometer strips, should be made with the equipment and the processing laboratory that will handle the final work. All subsequent work should be tagged with such test strips.

2. Minimum cross-modulation distortion, maximum signal-to-noise ratio and adequate frequency range should be the objective of the sound-recording work.

3. Violent changes in peak sound levels should be avoided. Television listeners object to the wide range of peak sound levels that apparently find acceptance in the theater.

The successful shooting of film for color television requires full appreciation of the differences between the requirements for viewing directly on a screen and for viewing on a television system. Once these differences are understood, experienced personnel should have no difficulty with the mechanics of producing color film tailored to the needs of the color-television system. The recommendations covering staging, lighting, camera, film and sound recording practices set forth in the foregoing paragraphs represent good starting points from which deviation may be made after extensive testing and field experience indicate the desirability of doing so.

Finally, one nontechnical subject warrants comment: the temptation to overdo color in the "learning" stage. Experienced color producers warn against over-emphasis of color merely for color's sake—the use of a riot of color which detracts from the play, the performers or the commercial product. There are no technical aids that can be substituted for actual experience, good judgment, artistic skill and proper organization. A reasonable share of these ingredients is required in the production of film for color-television use.

The authors gratefully acknowledge the assistance received from various members of the motion-picture and the television industries while they were undertaking the work which forms the basis of this paper. The cooperation of Karl Freund of Desilu Productions, Peter Keane of Screen Gems, Inc., Eric House of Technicolor Motion Picture Corp., and of Al Simon of McCadden Corp. was particularly helpful. The experimental portion of the work was undertaken under the able supervision of R. S. O'Brien and J. R. Whittaker of the CBS Television Engineering Dept., both of whom made major contributions to the undertaking.

NEW AURICON PRO-600

(Continued from Page 157)

The Auricon Pro-600 "Tele-Finder" optical system provides 10-times magnification of the image when telephoto lenses are used on the camera. When the camera is furnished with a 3-lens rotary turret, the three Tele-Finder objectives can be mounted on the turret. These automatically change the telephoto finder image size as the turret is rotated to change lenses, but without changing the 10x magnification of the finder frame image.

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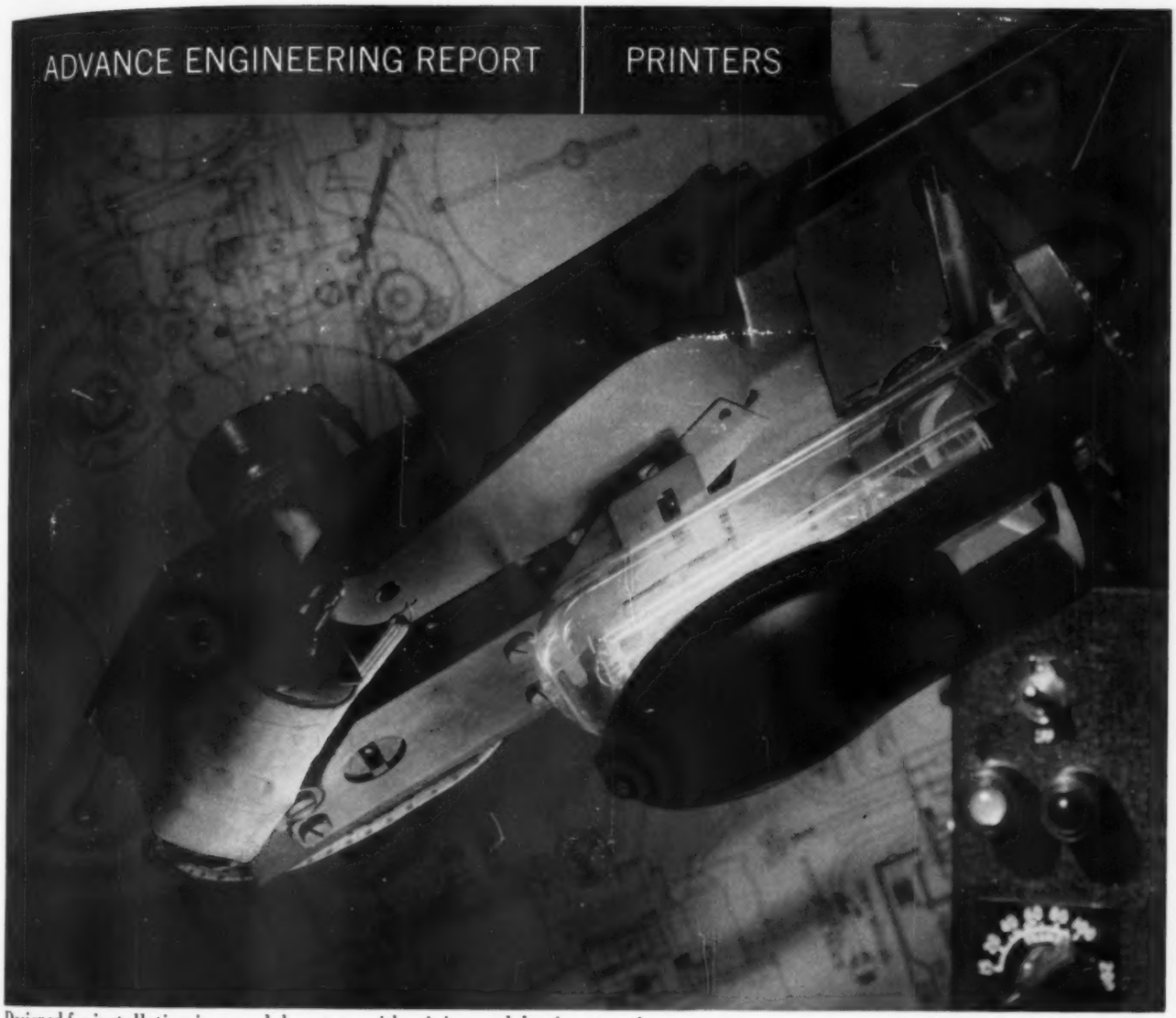

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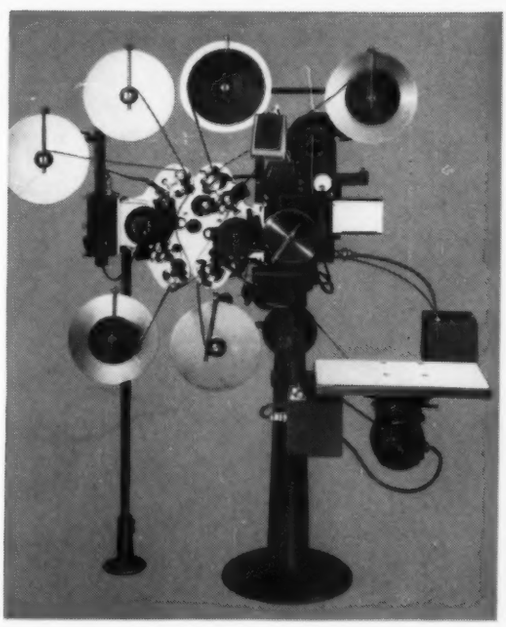

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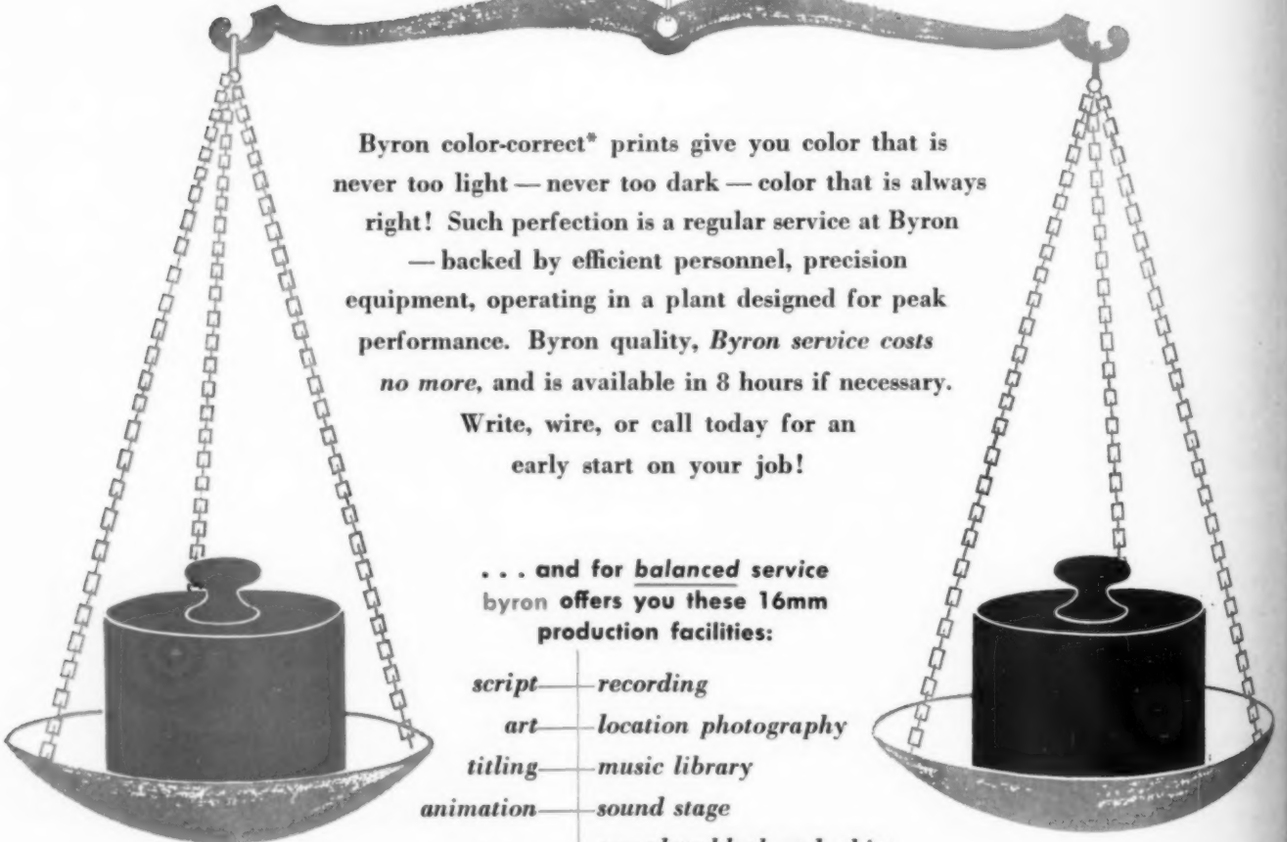

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